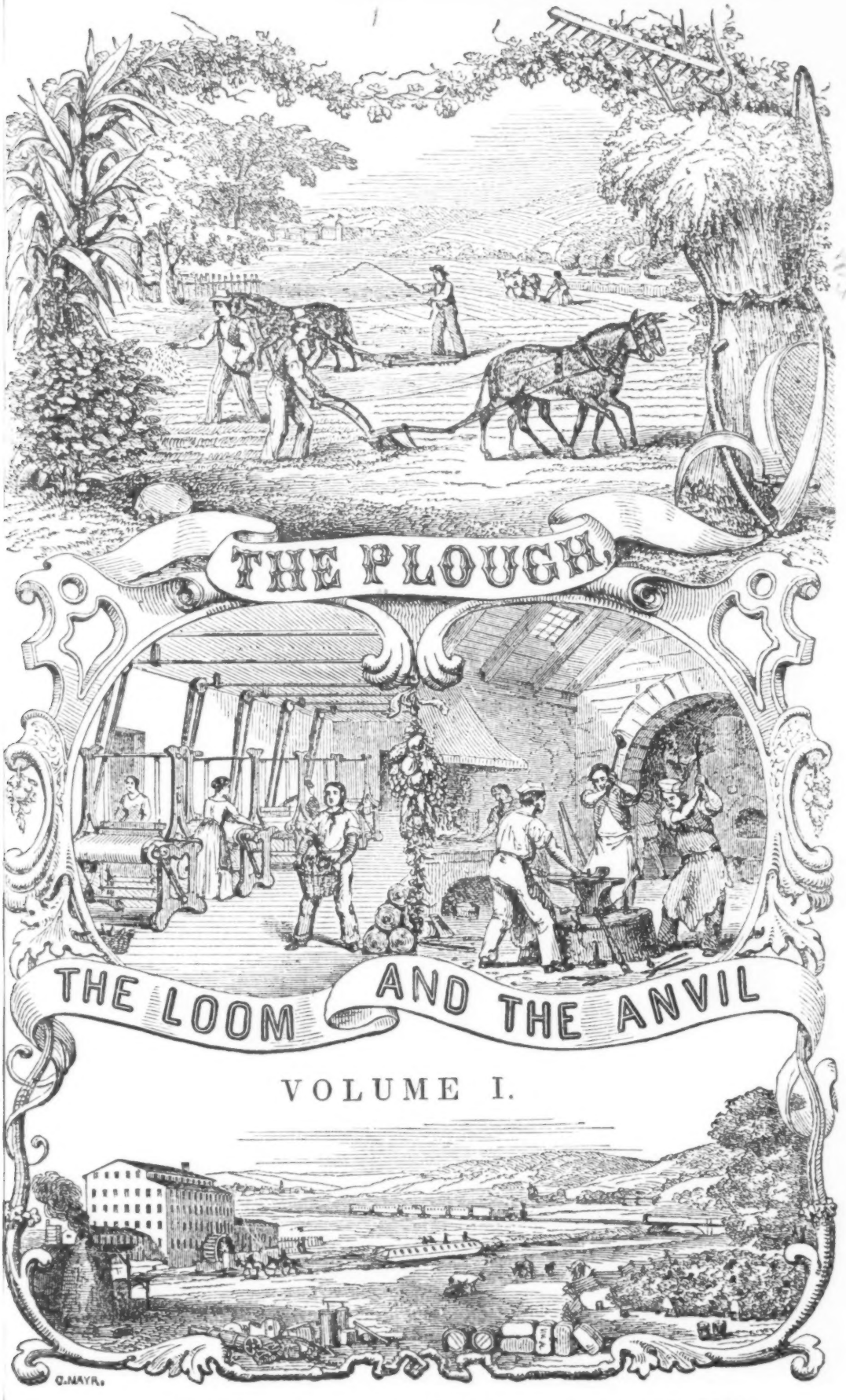

VOLUME I.

J. S. SKINNER & SON, EDITORS AND PUBLISHERS,
81 Dock Street, Philadelphia.

POSTSCRIPT PREFATORY

TO

VOL. I. OF THE PLOUGH, THE LOOM, AND THE ANVIL.

How rapid is the flight of Time, even when measured in periods of years, as it passes swiftly away, like natural objects in the retrospect of the steam-borne traveller! It seems but as yesterday, that the first number of the volume before us was thrown upon the public at a venture, and behold we are already summoned to write a preface—not to recall or amend the irreclaimable year that has past, but, in a review of it, to foreshadow the next. In doing this, the first questions are, under what influence, and with what views was the work undertaken? To the first, the ready answer is—under immediate necessity to do something for an honest livelihood; and for the rest, the enterprise took its form from an old and habitual desire to make our labours subsidiary to the amusement and welfare of society.

But, says the reader, had we not already agricultural journals sufficient to keep us advised of all that is new in the practice of our art? Yes, truly, and the low price at which they must be put—even below the very dregs of the party press, in order to gain a living support, showing that journals expressly designed to enlighten their proper vocation, are, with agriculturists themselves, the last to be demanded and the worst supported—is any thing but creditable or auspicious for that community. What then, says the reader, did you contemplate? It was, then, first, to prompt the cultivator of the soil to *think for himself*, as to the bearing of all legislation and action of State and Federal governments on the *landed interest of the country:* and, secondly, to aid, in our humble way, in leading him to insist on the *establishment of institutions*, in which the sons of the Planter and the Farmer might *study the principles of their profession*. When we say *to think for themselves*, we speak in reference to their undeniable habit of yielding up, too generally, their own judgments as respects the action and policy of government, to be moulded by professional politicians, generally lawyers or political doctors, who, mostly with a better education, but sometimes in a spirit of assumption, (the usual concomitant of ignorance,) kindly volunteer to tell the Farmer and Planter not only what they must think, but how and for whom they should vote!

Not without much of personal observation do we presume to speak in this matter. Up to early manhood were we reared in the country, seeing and participating in all its labours and amusements. With rural life are all our early associations, those that endure and give tone to men's character and destiny. Resident ever since in large cities, our thoughts and predilections have yet constantly reverted to our friends in the midst of their gardens and orchards—their fields and their meadows—their flocks and their herds—but truth compels the declaration, that it is there that party spirit is most rife and inveterate, and the sway of the demagogue most prevalent and tyrannical. Where most space intervenes between the plough and the loom and the anvil—enhancing the cost of exchanging the products of their industry, there will there ever be least power of combination and least independence of judgment. Who has not observed, that where population is sparse and education imperfect, a few leading men marshal their respective parties and lead them as the bell-wether leads the flock!

Now, although as to the political economy of agriculture we have our own theory, in which we fully believe, our wish is not to dogmatise, but to inquire—not to enforce an opinion, but to learn the truth; and hence to "hear both sides," as the reader has seen, has been not only our motto but our practice. Yet have our arguments been denounced as "absurd," in contending that the American cultivator should enforce the establishment of a policy that will compel the manufacturer to come and take his place, as Mr. Jefferson said, by the side of the agriculturist, instead of importing from abroad those commodities essential to every nation's independence, and the cost of which consists chiefly in the consumption of the food produced by serfs and paupers, whose whole wages for the year are not more than would buy the Sunday finery of a thrifty slave on a southern plantation—food produced by men who live on *pumpernicle*, and twelve pence a day for men, and seven pence for women in the field; but when the employer finds them, get but 3½ pence in addition to his food. "On large farms," says the Scotch traveller to whom we refer, "four pounds is the annual pay of a farm *servant*—(white men.) From this (the Dantzic) and the adjacent districts in Germany, *the greatest number of emigrants proceed annually to America*." Prince Esterhazy, on asking and being told by an English nobleman, the number of his *sheep*, remarked, "Why, I own a greater number of *shepherds* than you do of sheep!"

The doctrine maintained in the following pages is, that the country, whose market is glutted by the produce of such labour, can afford to the American Farmer only an occasional and precarious market in seasons of famine and pestilence, and when its inhabitants can consume so little of our other great staple as to sink it to a ruinous price; and thus it is that we witness the perpetual play of see-saw between the staples of the South and the West—the one uniformly rising as the other falls.

Here then, reader, you have some of the leading objects for establishing the work to which this introduction is prefixed. With the public it is left to say whether it shall go on increasing in circulation. At present it barely pays its own expenses, which is doing well at the end of the first year. For the future we have nothing new to promise—we adhere to all our original purposes, engaging only that each number of the coming volume shall be illustrated by engravings, not in the way of giving *pictures* to amuse children of a smaller or a larger growth, but to render useful subjects more intelligible—and here we close this *postscript* in the form of a *preface*, soliciting support not only from the Farmer and Planter, to whom we owe our first duty, but from every friend of *American Industry*, for although we are the advocates of *specific* protection, our labours in favour of the cultivators of the soil must *incidentally* benefit him at the loom and the anvil, and all others who *consume* the products of the plough.

J. S. SKINNER,

81 Dock street, Philadelphia.

The Plough, the Loom, and the Anvil.

VOL. I. JULY, 1848. No. I.

A DISCOURSE

ON THE RECIPROCAL RELATIONS OF AGRICULTURE AND THE OTHER BRANCHES OF AMERICAN DOMESTIC INDUSTRY.

BY J. S. SKINNER.

[THE senior editor of this journal was some time since appointed, in his absence, by the American Institute, and first named on a Committee, to make report upon "the establishment of Colleges and Schools in the States of the Union, for teaching both the science and the practice of rural economy;" and was also called upon to prepare an address to be delivered, at such time and place as might suit his convenience, by the New York Agricultural Association.

At the time, he could not see the way clear to hope for leisure to accept either of these invitations; and as to the first, although for thirty years he has steadily advocated the claims of agriculturists to public provision for instruction adapted to their profession, further reflection has convinced him, that practical knowledge of the most approved systems of agriculture is *not* the *first and greatest want of the landed interest of this country.* The evils, as he feels persuaded, that occasion the decay of their husbandry, and the dispersion of the children of the old States, lie deeper and broader than is their assumed ignorance of the best modes of culture; and are referable to other and very different sources.

These sources he has endeavored to develope and expose in the following discourse. It was prepared in the midst of arrangements to purchase and remove the FARMER'S LIBRARY, and he has not even had leisure to give the necessary notice, that arrangements might be made for its delivery, as originally designed, under the auspices of the highly respectable association before named.

What remains with him now is, to express his unaffected regret at the want of ability to convey more forcibly his own conviction, that truly the time, to use the words of Mr. Jefferson, in 1816, *has* "now come, when we must place the manufacturer by the side of the agriculturist."

In changing the *title* of the work to which his labors will be henceforth earnestly devoted, it is but fair and just towards all who may be kindly disposed to patronize it, that they should fully and distinctly understand what are the Editor's views, as respects the best and most permanent security for

an improving and prosperous agriculture: and these he has endeavored to explain in the following discourse—to be carefully read, after reading the Prospectus, as the more perfect after-culture follows the first plowing.

Those whose paramount wish is above all things to come at the true foundation for the welfare of the *landed interest*, however different may be the opinions they entertain on the subject, will not, it is hoped, be deterred by its length from giving to this discourse a deliberate and impartial consideration; —while, for those who would pass on to lighter and more entertaining and practical matter, suffice it to declare that our great object is the same that has engrossed our thoughts and anxieties from boyhood to the present time, to wit, to discover, and, according to our poor abilities, to augment the means of improving the character and profits of *American Husbandry*. Finally, we are aware of the apprehension for the future, which may be created by the *length* of this first article; but let the reader take comfort in the view of almost fifty pages remaining for other subjects, to be read and digested, before the appearance of the second number.]

In the state of its Agriculture is to be found the true test of the advancement of a nation in all the useful arts, or, in other words, of the civilization of a community. It is not the one by which it is usually tried, and it is not improbable that many of my hearers may at first be disposed to doubt the correctness of the assertion; yet on further reflection I am inclined to believe they will agree with me in regard to it. If they will for a moment cast their eyes over the world, they will see many reasons for giving to the subject at least careful reflection, before they come to a final decision adverse to the correctness of my assertion. They will see the highest civilization of Asia in connection with the almost perfect agriculture of China, while they will see a state of barbarism in connection with the ruined agriculture of Hindostan. They will see civilization in highly cultivated Tuscany, and barbarism in depopulated Sicily, once the granary of Rome. They will see civilization in highly cultivated Normandy, and barbarism in half-cultivated Auvergne, whose power at one time was such that it gave to the son of France his title of Dauphin. They will see civilization in the highly cultivated counties of the North of England, and barn-burnings and poaching, and other marks of barbarism in the half-cultivated South. They will see civilization in the Lothians and other parts of the south of Scotland, and barbarism and depopulation in the north. In this country they will see the most rapid advances in civilization in New England, where cultivation extracts from a naturally sterile soil vast supplies of food, while the best soils of South Carolina are being abandoned by their owners, who fly to the west, there to perform the same exhaustive process to which the inferior portions of their original lands have already been subjected.

The business of the agriculturist is that of production; that of the manufacturer is to change the form of the products obtained in return for the labors of the farmer; that of the merchant and trader is merely to change their place and their owners. The first would seem to be the most important, for without him the others could have no existence. Arrest and put a stop to the labors of the agriculturist, and the manufacturer and the merchant would expire like mice in the exhausted receiver of an air-pump. The science that the agriculturist cultivates would seem necessarily to be the one that should first attain perfection, yet it is invariably the last; and therefore

it is that if we desire to find the highest civilization we must seek it in those countries, those states or provinces, in which the labors of the farmer are blest with the largest returns.

Why this is the case may, I think, readily be accounted for. The farmer labors in the field. In the early stages of a country's growth, exposed to the dangers of war, civil or foreign, he is compelled to limit his labors to those patches of land that are nearest to the protection of city walls, and is unable to choose his soils. At brief intervals, his little farm is overrun, his crops are carried off, and his implements destroyed by friends or foes, for in time of war the first are frequently as dangerous as the last. In such times the doctrine, that the end sanctifies the means, is universally acted upon, and generals accumulate fortunes out of contributions extorted from fellow-citizen, or fellow-subject, on pretence of promoting "the public good." The farmer is most of all exposed to oppression of this description, because he lives apart from his fellow-men, while others live together, and are enabled, by concert with each other, both to protect themselves and to control the measures of government for their own advantage. Hence agriculture marches in the rear ranks of civilization.

The manufacturer, on the contrary, labors within the city walls. War often interferes with him, but without destroying him. The town may be besieged for weeks or months, and he may suffer from want, but at the close of the siege he still has a portion of his capital unimpaired—his house, and his tools, and his skill—whereas the lands around the city have been ravaged and are left in a state of ruin. Before the farmer can recommence his work he must obtain new spades and plows, new horses and oxen, and he must build a new house, for that which he had occupied has been used for fuel. So too it is with trade. That too is carried on under the protection of city walls, and the trader is frequently enriched by the events of war, while the farmer is ruined. In time of war, merchants travel in company, forming caravans, and arming themselves for self-defence. Ships too are armed, and ship-owners are often enriched by wars that bring to the farmers of the country to which they belong nothing but ruin and desolation. The man who cultivates the land is the only one who is necessarily defenceless, and therefore has it been and ever will be, that in times of barbarism agriculture makes small progress. War, rapine, and glory, are then the chief pursuits of men. By success in these, they win honor and distinction, and obtain power over their fellow-men. Productive agriculture requires peace, and continued peace brings civilization, and of all the evidences of growing civilization the most certain is that which is exhibited in the application of intellect to the promotion of the great science of production; that science which teaches us the mode of compelling our great mother earth to yield in greatest abundance the rich stores with which she is charged for the sustenance and comfort of all animated nature.

In a state of barbarism the first and great pursuit is that of the soldier. The second is that of the merchant. The manufacturer then is little better than a slave, while the tiller of the ground is absolutely a slave, and is often sold, as still is the case in some of the least civilized parts of Europe, with the land, or from the land, at the pleasure of his master. In such countries, and in that state of society it is, that a modern traveller has seen three hundred white women at work in the field without covering of any sort for their heads or feet. With the gradual growth of civilization, the order tends to become inverted. The trade of the soldier falls in estimation as that of the cultivator rises. The mere exchanger of the products of the plough and the loom becomes less important than the manufacturer. With the highest civilization, the producer will stand, as he de-

serves to do, at the top of the list, and the manufacturer will stand second, while the merchant will be the last, as the trade of the soldier will then have ceased to exist. Warlike establishments, for which the republican people of this country have paid eighty per cent. of their whole expenses for government in time of peace, will be abridged or discontinued, and reason, truth, and justice, will take the place of selfishness and force.

To that point it is that we are gradually tending, and that such is the case, I need ask no better evidence than the assemblage now before me. It is, however, but recently that such has been the tendency, for until the present century agriculture has scarcely been deemed a pursuit worthy the attention of the gentleman, or the man of science, and until now its humanizing effects have been little appreciated. Everywhere we see reference to the benefits conferred upon mankind by commerce. That "Commerce is king" has passed into a motto; but if we wish to see any thing in commendation of agriculture we can but rarely find it, except in the works of poets which are read by few, and are appreciated by but a small portion of those who read them. To commerce is assigned, almost universally, the first rank as a civilizer of man; yet, if we compare its effects upon the mind of man with those of agriculture, we cannot but be struck with the difference in favor of the latter. The skilful farmer should be a man of science. He should understand the composition of soils and the action of manures. In the whole range of science there is scarcely any portion that may not, at times, be useful to him. His labors are those of all others which are calculated to produce development of mind, while they are of all others calculated to produce repose of mind, happiness, and peace. He profits equally with his neighbors by favorable seasons, and he loses equally with them in unfavorable ones. He has all to lose by war, and nothing to gain, for he involves himself in neither speculations nor loans. His disposition is, therefore, always for peace. He produces most of the commodities he consumes, and his income is liable to little change, other than that which results from natural causes. He is, therefore, careful and economical. The first wish of his childhood is rural happiness, nor is it ever lost sight of except where some turbulent and resistless passion depraves and hurries away the soul. In every period of life it animates virtuous and ingenuous minds. Such were the words addressed, more than fifty years ago, to the Agricultural Society of New York, by Hon. R. R. Livingston, its President. For ever respected and honored be his name and memory by all the friends of the plough.

The trader, on the contrary, is required to know nothing of the composition of the cotton or the wool, the sugar or the indigo, that he buys or sells. All that he seeks to know has reference to the prices at which they are bought and sold, and the profit or loss resulting therefrom. In this, no mind is necessarily developed, while he is exposed to perpetual agitation of mind. He wants no science, and he has no leisure to study science. He values the telegraph, because it enables him to sell his cargo before the news is generally known, and thus shift upon his neighbor the loss that might have fallen on himself; or his neighbor, better informed than himself, sells him a cargo, and he is ruined. With war saltpetre rises, and his fortune is made. Famine enriches him because he has speculated largely in corn, and he magnifies the deficiency that he may obtain a better price. He bids for a loan, and he is ruined. He passes through his hands vast property, while producing nothing. He is led to fancy himself rich, and hence result habits of lavish expenditure that end in ruin. His life is one of perpetual fever and anxiety. He has no time to study nature and her laws, whereas the whole business of the farmer is improved in proportion to his knowledge

of those laws. And yet, look where we may, we find commerce placed in the first rank as the great civilizer of mankind.

If we look around us, even now, we see commerce carrying war and desolation into China. We see it promoting the slave-trade. We see in the depopulation of India, by French and English armies, the effects of commerce. We may see it in Algeria and in Tahiti, wasted by French armies. We may see it in the perpetual wars between England and France for worthless colonies. We see it now in the unceasing changes and consequent ruin of the British West Indies. That commerce between distant nations is very desirable, is not to be doubted. It is well that the man of Old England and New England should have tea, and sugar, and coffee, and that the man of Cuba and Brazil should have clothing; but that the inordinate love of commerce manifested by Holland, England, and France, has tended to advance civilization, I am unable to perceive. The real civilizer of the world is agriculture, and the highest civilization will invariably be found where the labors of the farmer are most aided by science, and where they are most largely rewarded by our great mother earth.

The earth is a great machine, given to man to be worked and fashioned to his purposes. It is the sole producer. In the words of Mr. Carey, in his recent work, "The Past, the Present, and the Future,"—not only recent in date, but new and redolent of important truths in the politics of agriculture—a work which might better have been entitled The Book of Revelations of the True and Proper Relations of the Producer and Consumer:

"The earth is the sole producer. Man fashions and exchanges. A part of his labor is applied to the fashioning of the great machine, and thus produces changes that are permanent. The drain, once cut, remains a drain; and the limestone, once reduced to lime, never again becomes limestone. It passes into the food of man and animals, and ever after takes its part in the same round with the clay with which it has been incorporated. The iron rusts, and gradually passes into soil, to take its part with the clay and the lime. That portion of his labor gives him wages while preparing the machine for greater future production. That other portion which he expends on fashioning and exchanging *the products* of the machine, produces temporary results, and gives him wages alone. Whatever tends, therefore, to diminish the quantity of labor necessary for the fashioning and exchanging of the products, tends to increase the quantity that may be given to increasing the amount of products, and to preparing the great machine; and thus, while increasing the present return to labor, preparing for a future further increase.

"The first poor cultivator obtains a hundred bushels for his year's wages. To pound this between two stones requires twenty days of labor, and the work is not half done. Had he a mill in the neighborhood he would have better flour, and he would have almost his whole twenty days to bestow upon his land. He pulls up his grain. Had he a scythe, he would have more time for the preparation of the machine of production. He loses his axe, and it requires days of himself and his horse on the road, to obtain another. His machine loses the time and the manure, both of which would have been saved had the axe-maker been at hand. The real advantage derived from the mill and the scythe, and from the proximity of the axe-maker, consists simply in the power which they afford him to devote his labor more and more to the preparation of the great machine of production, and such is the case with all the machinery of preparation and exchange. The plough enables him to do as much in one day as with a spade he could do in five. He saves four days for drainage. The steam-engine drains as much as without it could be drained by thousands of days of labor. He has more leisure to marl and lime his land. The more he can extract from his machine the greater is its value, because every thing he takes is, by the very act of taking it, fashioned to aid further production. The machine, therefore, improves by use; whereas spades, and ploughs, and steam-engines, and all other of the machines used by man, are but the various forms into which he fashions parts of the great original machine, to disappear in the act of being used; as much so as food, though not so rapidly. The earth is the great labor savings' bank; and the value to man of all other machines is in the direct ratio of their tendency to aid him in increasing his deposits in the only bank whose dividends are perpetually increasing, while its capital is perpetually doubling. That it may continue for ever so to do, all that it asks is that it shall receive back the refuse of its produce: the manure: and that it may do so, the con-

sumer and the producer must take their places by each other. That done, every change that is effected becomes permanent, and tends to facilitate other and greater changes. The whole business of the farmer consists in making and improving soils, and the earth rewards him for his kindness by giving him more and more food the more attention he bestows upon her.

"The solitary settler has to occupy the spots that, with his rude machinery, he *can* cultivate. Having neither horse nor cart, he carries home his crop upon his shoulders, as is now done in many parts of India. He carries a hide to the place of exchange, distant, perhaps, fifty miles, to obtain for it leather, or shoes. Population increases, and roads are made. More fertile soils are cultivated. The store and the mill come nearer to him, and he obtains shoes and flour with the use of less machinery of exchange. He has more leisure for the preparation of his great machine, and the return to labor increases. More people now obtain food from the same surface, and new places of exchange appear. The wool is, on the spot, converted into cloth, and he exchanges directly with the clothier. The saw-mill is at hand, and he exchanges with the sawyer. The tanner gives him leather for his hides, and the paper-maker gives him paper for his rags. With each of these changes he has more and more of both time and manure to devote to the preparation of the great food-making machine, and with each year the returns are larger. His *power to command* the use of the machinery of exchange increases, but his *necessity* therefor diminishes; for with each year there is an increasing tendency towards having the consumer placed side by side with the producer; and with each he can devote more and more of his time and mind to the business of fashioning the great instrument; and thus the increase of consuming population is essential to the progress of production."

These are passages full, as it seems to me, of important truths, from a work in which, for the first time, the superior advantages of labor applied to agriculture, as compared with commerce, are fully shown, and to which I gratefully acknowledge myself indebted for some of the views I now offer you. In a state of barbarism men live apart from each other, and the intervention of the trader is needed for the performance of every exchange. The labor of transportation is great, and of the value of the commodity, when it reaches its market, the chief part consists in the freight and the charges of the trader. In a state of advanced civilization, men live near each other, and perform their own exchanges. Transportation is inconsiderable, and the cost of the commodity to the consumer but little exceeds the price that is paid to the producer. In the first case, but a small amount of labor can be given to the earth, the great machine of production, and men remain poor. In the second, nearly the whole is given to the improvement of that great machine, and men become rich, acquire command of time and means, and rapidly improve in all the arts and amenities of civilized life.

We have here the secret of the productiveness of agriculture in China, Belgium, Normandy, the north of England, the south of Scotland, and in New England. The great machine is made to yield largely, because the refuse of its produce goes back upon the land—the consumer and the producer having taken their places by the side of each other. The cost of exchanging has been diminished, and the whole labor is applied to the work of production. If now we look at India, or Ireland, we see the reverse of this state of things. The consumer and the producer are far from each other, and the labor applied to the comparatively fruitless work of exchanging exceeds that given to the production, while the manure is wasted on the way, and therefore it is that they remain poor. Here we may find the cause of the exhaustion of our southern States. Here, too, we may find the reason why Seneca county, unsurpassed in natural fertility, has fallen in the product of wheat, from twenty bushels to fifteen; Albany county down to seven and a half, when, before the Revolution, it was upwards of twenty. Always taking out of the meal tub, and never putting in, will soon come to the bottom. The earth will yield largely if properly fed. She asks only to have the refuse restored to her, and if that be denied, she expels the man who thus ill-uses her. Hence it is, that Virginia remains almost stationary in popula-

tion, while other States increase rapidly, and hence it is, that the population of South Carolina diminishes in amount. In the latter State the proportion of consumers to producers, of traders, mechanics, and other non-producers of agricultural products, compared with the agricultural producers themselves, is as 14 only to 198; whereas, in Massachusetts, where population is constantly increasing, and growing richer, and rising in value, the case is reversed, and the consumers who do not follow agriculture, but consume its fruits, bear to the producers the large proportion of 87 to 125. From Carolina almost every thing that is taken out of the ground is sent abroad, except so far as is needed for the people who produce it, and hence it is that exhaustion has been so universal, and that men are compelled to fly from each other. It is not that planters lack intelligence in their profession. The Union cannot boast a more accomplished body of landholders.

Few men have labored, I may safely say, more unweariedly for the dissemination of information in regard to improved modes of cultivation, and the employment of manures, than myself, yet I have been somewhat mortified to see, that with all my labors, and with all my endeavors, in cooperation with abler minds, to make known the process and the results of the best English and American experiments, production has steadily diminished in many parts of the country: in parts too, in which the character of the soils yet open for occupation and cultivation appeared to offer the strongest inducements to exertion. Thus, in this State, with all the patronage of the State through the State societies, we see the average yield of wheat scarcely thirteen bushels to the acre, where formerly it was twenty; that of Indian corn only twenty-five, and of potatoes but ninety bushels. In Virginia, notwithstanding all the advice bestowed upon her farmers, within my personal knowledge, for thirty years, the process of exhaustion has still gone on, and with it that of depopulation. In the middle and lower sections of that State, the population, which in 1820 was 746,000, was, at the last census, after a lapse of twenty years, but 783,000, and yet that portion of the State abounds in marl, and shell lime, and other rich resources, the abundance and value of which have been developed by Ruffin, scientifically and practically, and in the highest spirit of patriotism.

In South Carolina too, to which the same patriot has rendered the same service—containing millions of acres fitted to produce the finest grasses—population diminishes, notwithstanding the labors and demonstrations, for fifty years, of agricultural societies composed of the most eminent man of the State—distinguished alike for patriotism and science, and feeling a deep interest in the dissemination of agricultural knowledge. In North Carolina agricultural philosophy has abounded, yet there, notwithstanding the zealous and enlightened labors of Jeffries and his associates, why is it that agriculture has made so little progress? It has not been for want of exhibitions, cattle shows, prizes, papers, essays, &c., for they have steadily increased. Nay, as our agricultural journals of New York have increased, abounding as they have with practical instruction, the product of her soil has diminished. Always full of anxiety for this great interest of our country, these things, I confess, have puzzled me. They were a riddle that I could not read.

Quite recently, however, the problem has been solved. In the work to which I have already called your attention it has been shown conclusively, in opposition to the commonly received opinions on the subject, that the work of cultivation is invariably commenced on the poor soils, upland and devoid of timber, that need not the expensive and laborious clearing, and the deep drainage that the richest lands always do; and that this is done because of the necessity of the case, as men commence with small

force and limited means, with axes that one can swing, felling logs that one can roll, and canoes that one can paddle, before they proceed with saws that require the force of two, and ships that demand many to build and navigate them. The early settler almost invariably has small means, and with them he can cultivate only the poorer soils, encumbered with little or with a lighter growth, but with improvement in his means and increase of his machinery he is enabled to clear and cultivate the richer soils on which he would starve if he possessed no other force or machinery than that which he could at first command. That such has been the commencement and progress of agriculture in all nations and at all ages, is abundantly shown by the author; but I have just now met with new confirmation of it in the transactions of the South Carolina Agricultural society, and am induced to refer to it, because it is the State that of all others has most exhausted the poor soils first cultivated, and in which the tendency to fly from the rich soils most exists. One of the presidents of the society, distinguished for his wide research, and for zeal as enlightened as it is untiring, Mr. Seabrook, in an address delivered in 1843, says, "The land which could most readily be prepared, was invariably chosen; the best, *requiring a large expenditure of labor*, neglected." He adds, that "only recently have the swamps of some of the parishes and the immense tracts which lie along the line where the salt and fresh water meet, attracted the notice of the cotton grower." We need not however go to South Carolina for evidence of this fact. A ride along the railroad from Albany to Buffalo will enable us to see the richest soils, in vast abundance, uncleared and undrained, while, in their vicinity, men are seen cultivating originally poor soils, upon which they and those who went before them have wasted their labors, during almost half a century, and from which they are now flying, as from pestilence, to recommence the work of exhaustion still farther west. I have recently, on another occasion, and very deliberately, expressed the opinion, that in the State of New York there is as much land needing to be drained, and which, if drained, would be the best in the State, as would cover half the State of Rhode Island.

The cause of this is, as it seems to me, easily explained: the early settler is dependent upon distant markets, where alone his customers, the consumers, are to be found, and all his modes of communication are imperfect and bad. He therefore naturally applies himself to raising those commodities which will bear transportation, being those of which the earth yields little, and which, therefore, command a higher price in the market to which he is compelled to look for the performance of his exchanges. An acre of land yields two hundred pounds of clean cotton, or six hundred pounds of wheat, and these may bear the expense of transportation, whereas potatoes and turnips and Indian corn will not. He goes on to exhaust his originally poor soil, sending off all its produce to be manufactured or consumed abroad, and wasting on the road the manure yielded by the oats, the corn, the hay, and the fodder raised for his horses and cattle; and when at last it ceases to yield a sufficient return, he transfers his labor to other poor lands, similar to the first, neglecting the rich lands of the swamps and valleys, and he does so for the reason that he can always obtain for **$1 25** per acre, poor lands that will yield two hundred pounds of cotton, or ten bushels of wheat, whereas to clear and drain the rich swamp or timbered lands, would cost him **$30** an acre, and they are not worth that price for the raising of articles of which the earth yields little, and that *will* therefore bear the expense of carriage to distant lands. In order that they may be worth the cost of clearing, he must be enabled to take out of them those commodities of which the earth yields largely, and *they will not* bear carriage to distant markets.

Acres of rich lands will yield tons of hay and potatoes, but they are valueless unless consumed on the spot. Give him consumers within striking distance, and he may have the manure yielded by those tons, and thereby enrich his originally poor soils, enrich himself, and keep his children around him. Keep him dependent upon distant markets, and he must exhaust his land and fly to new lands that he can get cheap, abandoning the rich, undrained, and uncleared lands in his own neighborhood, and waste his labor on that which yields only pounds of cotton, when he might have tons of potatoes. The policy which thickens population makes the food come from rich soils, while depopulation drives men back to the poor ones.

It is the common impression that the men who fly to the West, do so because they have exhausted the rich soils, and because they can recommence the work upon other rich soils. Directly the reverse is the fact. It is because they have no market at hand for the commodities that would pay for clearing and preparing the rich lands they leave behind. For want of force and capital they commenced their work on the highest and most open lands, which, as a general rule, are always the thinnest lands, and they fly to other lands of the same sort, and therefore is it, that the average yield per acre, in the West, is so small as we see it is. In Ohio the yield of wheat, in 1847, was but ten bushels, and is steadily declining, because men are exhausting the lighter soils, which they found more easy and open to cultivation, and are unable to clear and drain the richest ones. In the extract from the transactions of the South Carolina Agricultural Society, which I have already given you, we have seen that it was upon the poor soils of that State that cultivation was begun. Let us now see what are the soils from which men are flying. Governor Hammond, a practical agriculturist of the first order, in his address to the society, says, "that vast inland swamps, well suited for the culture of rice, yet frown in barren gloom below the ridge, while many of the up-country bottoms, which are destined at some future day to groan beneath its harvests, are now only idle wastes, consigned to flags and rushes." Again, he says, "that in many parts of the State, marl has been found in great abundance, and at convenient points for water transportation," while "in other parts limestone exists to an unknown extent." In others again "salt marsh and oysters abound, while almost everywhere upon the rivers, creeks, and branches, and in the swamps, are rich alluvial deposits, abundantly fitted to recruit the exhausted cotton lands." Possessed of all these resources, he thinks it would not be tedious or expensive to reclaim the worn-out lands, yet each year shows an increase of emigration from these rich and virgin soils to the poorer lands of Texas and Arkansas, for each settler in those States occupies lands precisely similar to those which have already been exhausted in South Carolina, neglecting, and precisely for the same reasons, rich soils similar to those from which the people of that State are now and have for many years been flying. Again, he says, "our climate has not been found too warm for any species of domestic animals. English cattle and sheep, as well as English horses, flourish even on our sea-board; and our mild winters enable us to keep all kinds of stock at comparatively little expense, for either food or shelter. Our swamps are covered with natural and nutritious evergreens, and most artificial grasses have been found to succeed. Carrots, beets, and turnips do well. Pindars and sweet-potatoes, more valuable perhaps for stock than these, are peculiarly our products. With these two articles, the luxuriant cow pea and the common grains, we can, for nine months in the year, furnish, at a cheap rate, the richest and most abundant pasturage; and what country can do more?" I answer, none. There are materials for clothing in abundance, and materials for food in abundance, while in the words of the same sagacious and profound observer, "an all-bountiful Pro-

vidence has blessed this favored region with mineral wealth of incalculable value," and given it water-power, "that may safely challenge comparison with any part of the world." The State has, in fact, every thing to make it rich and prosperous, except one, and that is population. By the last census, with all these natural advantages of soil, climate, mineral resources, and water-power, there were less than 20 to the square mile, and yet men are deserting the State, and flying in all directions, south, and south-west, while cold, stony, and gravelly Massachusetts supports over 100 to the square mile. In the last ten years prior to 1840, the increase, in South Carolina, so highly favored by Providence, has been but 2.3 per cent.; that of Massachusetts has been at the rate of 20.8.

South Carolina has every thing to make her one of the wealthiest States in the Union, except the presence of a consuming population, and until she shall get that, the work of exhaustion and abandonment must go on. She cannot afford to clear rich lands to raise cotton, because the cost of transporting a bale from Mississippi or Texas produced upon land that cost $1.25 per acre, is trivial compared with the cost of clearing one of her rich acres, that would give, when cleared, but 400 or 500 pounds. In order that such lands may be cleared, she must make a market at home for hay and turnips and potatoes, and Indian-corn, and cabbages, and milk, and veal and butter, and until she shall do that, all the philosophy of agriculture will not avail her to bring her richest lands into play, and to increase her population. Dispersion instead of concentration will continue to be the order of the day. Throughout the world, condition of agriculture is good or bad in the ratio of consumers to ers. In China, Tuscany, Belgium, Normandy, Lancashire, the sou cotland, and New England, consumers abound, and agriculture and ulture improve rapidly. Yet the science and principles of agriculture are at least as well understood in Virginia and South Carolina as in Massachussetts and Connecticut. In India, Sicily, Spain, the north of Scotland, Canada, Virginia and South Carolina, consumers are few. Labor and manure and time are wasted on the road, and the land under cultivation is everywhere exhausted. In the first, population increases rapidly, and the supply of food increases more rapidly than population, because of the constant improvement in the powers of the great machine of production; whereas in the latter, population is stationary, even where it does not diminish, because of the constant deterioration of the machine. The great secret of improvement is to be found in the habit of combined action. Two men can carry logs that a thousand men, each acting separately, could not lift from their places. Every man knows and feels this, and therefore it is that with the progress of civilization there is a steady increase in the natural tendency to combination of action, for the making of roads, the building of houses, mills, factories, ships, &c. Nevertheless we see, throughout this country, men running away from each other as from pestilence, and seeking Texas, Iowa, Oregon and California, as if the great object of life was that of placing between themselves and their neighbors as much space as possible. The great pioneer of the West, Daniel Boon, complained that he could not breathe freely when a squatter came within a hundred miles of him, and a somewhat similar feeling seems to exist among our countrymen generally. From north to south, there seems to be a universal disposition to abandon old farms, old homesteads, old churches, old friends, old comforts, and old associations of every kind, to seek in the West new farms, upon which to build new houses, upon poor soils, among woods that they cannot fell, and swamps they have not the means to ditch or drain.

The existence of this tendency to depopulation in the old States has long appeared to me to be most wonderful, but it is now explained. The richest

soils cannot be cultivated until the consumer takes his place by the side of the producer, and when he does not do so, the poorer, lighter, and less encumbered soils, which are first cultivated, are speedily exhausted, and men are forced to fly to other poor ones.

The impression that the emigrant flies to rich soils is seen in every page of the transactions to which I have referred. It is there universally assumed that the decline and probable ultimate abandonment of the cotton cultivation of South Carolina, is to be attributed to the superiority of the soils of the Gulf States: yet if we trace the emigrant to Texas, we find him placing himself on the thin soils towards the heads of the streams, and not on the low rich lands near the mouth,—and they do this, not from choice, but from necessity, as their predecessors did in South Carolina and Virginia. The virgin soils of these States are the rich ones—those which have been exhausted were the poor ones. So is it in New York, which abounds in forests and rich low grounds, covering rich lands that will never be worth clearing until a market for their products can be found upon or very near the land itself.

It is this perpetual exhaustion of the land that prevents improvement in agriculture. It is in vain that we attempt to teach the advantage of manures while all the manure yielded by oats and hay, and fodder, is wasted on the road to distant markets—in carrying away the cotton to be spun and the wheat to be eaten in Lowell or Manchester. It is in vain that we lecture on the qualities and value of artificial manures while men find themselves compelled to fly from the rich soils of swamps and river bottoms, in which manure has for ages accumulated. It is in vain that we talk of drainage of rich alluvial soils, while men find it cheaper to fly from home to seek subsistence from the cultivation of poor soils, because of the want of inducement to clear and drain rich ones, there being no markets at hand to dispose of their heavy products. It is in vain to hope for improvement until the consumer of produce shall enable the farmer to return to the great machine of production the refuse of its products, and thus augment, instead of every year exhausting, its powers of production, as now he does. If we desire prosperous agriculture, we must place ourselves in the same condition with other communities in which agriculture is prosperous; and if we look to Normandy, or Belgium, or Lancashire, or Massachusetts, we shall see that they have all of them provided a market on the land for the products of the land. In the towns of Massachusetts, we are told that thirty-two tons of carrots, and other root crops in proportion, are not uncommon. Compare for a moment the manure yielded by such a crop, with that of fourteen bushels of wheat.

In the natural course of things, the consumer takes his place by the side of the producer, because it is much easier for the shoemaker and his lapstone to come to the hides and the food, than for the hides and the food to go to the shoemaker and the lapstone. The natural instinct of man tends to combination of action, yet here we see men who should be tanners and shoemakers, tailors and hatters, spinners and weavers, consumers of food, flying to the West, to become producers of more food, and leaving behind them thousands of acres of rich soil still in a state of nature—that they may recommence the work of cultivation on the thin dry soils of the hills, where the least clearing is to be done, at a distance from tanners, and shoemakers, tailors, hatters, spinners and weavers, and then wasting on the road the manure yielded by those poor soils, besides expending a great part of the value of the product itself, before they can reach those who are to manufacture and consume them. To produce effects so unnatural, some powerful cause of disturbance must exist. It does exist, and to the book to which I have already called

your attention, and which should be in the hands of every farmer, I for one am indebted for the demonstration of its existence and its mode of operation.

I have already shown that agriculture is the last of all the pursuits of man to attain development, and that in a state of barbarism the order and estimation of his various pursuits is that of war, commerce, manufactures, and, last of all, agriculture. Such has been the course of things in England, but her insular position secured to her internal peace, the consequence of which has been that war has been less than with any other nation in Europe, the occupation of the people. Wealth grew, therefore, with greater rapidity than elsewhere, and mind and wealth were turned to the second of the pursuits of man, commerce. It could not well do otherwise, for land was hedged around by restrictions, in the form of rights of primogeniture, entails, and tithes, that effectually prevented improvement, while the work of cultivation was held in disesteem, being regarded as the proper pursuit of the serf. The thirst for commerce gave rise to navigation laws, and the colonial system. With increase of wealth manufactures grew, and machinery was invented, more and more perfect, and, to promote the interests of commerce, laws were passed forbidding the export of machinery, or the emigration of artisans, while colonists were prohibited from making even horseshoes, or from exchanging even among each other, except through the intervention of English ships, English ports, English merchants, and English machinery. The object of the whole system was to compel the world to do that which they otherwise would not naturally or willingly do, in carrying the hides and the food, year after year, to the shoemaker and his lapstone, instead of at once transferring the lapstone to the food and the hides, and thus for ever terminating the necessity for wasting on the road the manure, the time, and the labor that might otherwise be bestowed on the land. England desired to tax the world for the maintenance of her system. Such was the policy of England. It was injurious to herself, for it tended to divert labor from productive employment to one that was comparatively unproductive—from the work of fashioning and improving the great machine of production, where each step was but preparatory to a new and greater one, to that of fashioning the products of other lands, in competition with the laborer of other lands, when all that could be gained was simply wages. In the work of preparing this great machine, says Mr. Carey:

"Each step is but preparatory to a new one more productive than the last: requiring less labor and yielding larger return. The labor of clearing is great, yet the return is small. The earth is covered with stumps, and filled with roots. With each year the roots decay, and the ground becomes enriched, while the labor of plowing is diminished. At length the stumps disappear, and the return is doubled, while the labor is less by one-half than at first. To forward this process the owner has done nothing but crop the ground: nature having done the rest. The aid he thus obtains from her yields him as much food as in the outset was obtained by the labor of felling and destroying the trees. This, however, is not all. The surplus thus yielded has given him means for improving the poorer lands, by furnishing manure with which to enrich them; and thus he has trebled his original return without further labor: for that which he saves in working the new soils suffices to carry the manure to the old ones. He is obtaining a daily increased power over the various treasures of the earth."

The policy of England produced results for which it was difficult to account, and gave rise to the theories of Malthus and Ricardo, both going to show that the earth is a machine of constantly diminishing powers as regards food, and that population becomes necessarily redundant. Both assumed that man always commenced the work of cultivation on the rich soils, and that, as population increased, he was forced to have recourse to those of diminished power to remunerate labor; whereas Mr. Carey has shown, and shown conclusively, that he always commences on the poorer

soils, and that he cannot cultivate rich ones until the increased population provides a market on or near the land, for the products of the land.

As a natural consequence of the system, we find in all the English books a strong tendency to the elevation of commerce and manufactures, at the expense of agriculture. Thus Mr. McCulloch says:

"There are no limits to the bounty of nature in manufactures; but there are limits, and those not very remote, to her bounty in agriculture. The greatest possible amount of capital might be expended in the construction of steam-engines, or of any other sort of machinery; and after they had been multiplied indefinitely, the last would be as powerful and efficient in producing commodities and saving labor as the first. Such, however, is not the case with the soil. Lands of the first quality are speedily exhausted; and it is impossible to apply capital indefinitely even to the best soils, without obtaining from it a constantly diminishing rate of profit."

There is no limit to the number of grist-mills that may be built, and each successive one will be more perfect than that which preceded it; but of what avail will it be unless the grain be first produced? If no such thing existed, the grain might still be converted into flour; but if no grain be produced, the mill is useless. The only benefit derived from the existence of the mill is, that it diminishes the quantity of time required for conversion, and increases that which may be appropriated to production. So it is with steam-engines, carts, wagons, ships and steamboats, and spinning-jennies and looms. They are all valuable to the precise extent that they, by diminishing the labor necessary for the work of conversion and exchange, leave a greater quantity of labor to be bestowed on the work of producing commodities to be converted or exchanged. The great machine is that which produces the grain and the cotton. The secondary machines are those which convert them. A grist-mill which costs $10,000, will grind all the grain produced upon farms that have cost many hundred thousands to produce them in the form in which they exist. A factory that cost $100,000, will work up all the cotton produced for export in a country that has cost labor to the extent of millions, applied to the work of clearing, ditching, draining, grubbing, enclosing, and that of building dwellings, and barns, and stables, and gin-houses, and to the making of roads and other improvements. The earth is the sole producer. It is the great machine, and all other machines are valuable to the extent that they increase the time that may be applied to bringing into greater activity and augmenting its powers of production, and no further. Nevertheless, throughout the whole system of England, commerce and manufactures are seen to stand in the first rank, and agriculture in the last, and the boast of that country has been the vast proportion of her population that has been employed in the work of conversion and exchange, and the small proportion in that of production. Her motto has been "ships, colonies, and commerce," and hence it has been that agriculture has been, until quite recently, in a state so deplorably backward. But half a century since, England was described by a writer of the highest authority, as containing more waste land, in proportion to its extent, than any country in Europe, Russia not excepted; and yet it was at that very period that Malthus was engaged in preparing his book that was to prove the universal tendency of population to increase beyond the power of the earth to afford food. She has forced capital and labor into the unprofitable work of transporting and converting the produce of other lands, while neglecting to improve the power of producing at home; and hence it has been that while perpetually engaged in war for the acquisition of colonies that were to be compelled to purchase the produce of her looms, so large a portion of her own people went in rags. Her whole effort has been that of compelling the world to use her machinery, when they would have preferred to use machinery of

their own: and to this it is due that the profits of capital have been so small, that wages have been so low, and that the laborer has experienced so much difficulty in obtaining food.

There is no country in the world in which any given amount of labor is rewarded by the production of so much food; and yet, the agricultural laborer works a whole week for nine shillings, and receives in pay wheat at six or seven shillings a bushel. This is commonly attributed to the difficulty of increasing the supplies of food; but such is not the case. The ability of England to improve her powers of production is now greater than at any former period. Her increase in the average product of wheat per acre, in the last quarter of a century, is equal to the whole average product of the United States per acre. In every direction we see the expenditure of five dollars, ten dollars, fifteen dollars, and even twenty dollars per acre, in drainage and manure, attended with doubling, trebling, and even quadrupling the product; until forty and fifty bushels are by no means uncommon, and even eighty bushels have been reaped from an acre. The labor that was expended to clear and clean the land, and to bring it up to twenty bushels, was fifty times greater than is required to increase the product from that to fifty. The labor expended in this country by the emigrant to the West, in the cost and time of emigration, and in clearing and enclosing his land to obtain even a dozen bushels to the acre, the average of Ohio last year, is far greater than in England is demanded to raise the product from twenty to fifty bushels. England has yet to bring into cultivation her richest soils—those which are to be produced by the proper combination of the various elements given to man for the making of soils. It is but recently that she has, to any considerable extent, combined the lime with the clay, the marl with the sand. Other combinations are to be made, and will be made, now that agriculture is deemed a science worthy the attention of gentlemen and of men who cultivate science.

It is to this course of operation that have been due the endless wars in which she was engaged. She wanted colonies for which she could make laws, and that she could compel to purchase her manufactures, giving her in exchange raw products of the earth, most of which she could have produced at home with half the labor that was required to obtain them in the way in which they were obtained. She neglected her own agriculture, and compelled others to cultivate poor soils, and then fly to other poor ones, because of the impossibility of concentrating themselves for the cultivation of rich ones; for until the producer and the consumer come together, to create a market for the bulky and perishable commodities to which the rich lands are best adapted, and which would pay for bringing them into cultivation, they must remain uncultivated. To this policy on the part of England are due the exhaustion and poverty of Ireland; the depopulation and poverty of India; the condition of her West India colonies; the stagnation of Canada; the exhaustion and abandonment of Virginia and South Carolina. It is her policy which forces the producer to rely on far distant, precarious markets, and will not allow the consumer to come to the food.

It is to this course of English policy that the existence of protective tariffs is due. The farmers everywhere wanted markets on their ground, that all his time and labor now expended in the work of exchange might be saved, to give greater capacity and activity to his capital in the land; but he could not have his market near him while this great error in the English system continued to exist. He desired to save the time, and labor, and manure that were being daily wasted; and therefore was it that he desired to shut out the produce of the looms of England. These attempts at protective tariffs have been but so many instinctive efforts at self-protection—instinctive efforts

to obtain the power to do that which would naturally be done all over the world, but for the existence of great disturbing causes, felt to exist but not understood; turning labor from its natural and productive, into unnatural and unproductive channels, and dispersing population and retarding its growth and improvement, instead of allowing it to concentrate and realize the blessed fruits of combination and civilization. These disturbing causes, hitherto concealed, or seen as through a glass but dimly, are now for the first time clearly explained, and Mr. Carey, himself an advocate of free trade, says, that though he has always deemed such interferences erroneous, he must now admit the error to have been with himself.

A southern man myself, never given to tariff doctrines, I confess to have been convinced by his reasoning, and, thank Heaven, have not now to learn the difference between dogged obstinacy and consistency. Ye gods, give us but light, should be the motto of every inquirer after truth, but for far different and better purposes than that which prompted the exclamation. The work of Mr. Carey has enabled me to understand why it is that men are seen flying from their fellow-men and from the swamps and forests of New York, the marl-beds of Virginia, the marl and the lime of South Carolina, to make new homes in the woods, at a distance from towns, and cities, and steamboats, and railroads, and factories, and all those improvements that tend to give value to labor, and by condensation to promote all the arts and enjoyments of the highest civilization. It has enabled me to see, as I now think, why agriculture makes so little progress—why the produce of wheat in New York falls from twenty to less than fourteen—why the average of corn is not more than twenty-five bushels, and of potatoes not over ninety, when they should be four hundred—why even in Ohio the average product of wheat is not twelve bushels to the acre. Thirty years of my life have been passed, I may safely say, in anxious and almost daily contemplation of the condition and prospects of American agriculture, and in studying the means best adapted for its advancement. During all this time, the impression has been, that almost every thing depended on a little knowledge of its processes, and on the possession of the most improved animals and implements. The scales have fallen from my eyes, and I have been led to see, as I believe correctly, that the depressing influence which has been evidently weighing on the agriculture of the old States, narrowing the sphere of cultivation, and driving off their population and diminishing the value of their lands, notwithstanding the excellence of their climate and the abundance and richness of their natural resources, has consisted in the policy of governments, which compels men to scatter instead of concentrating. The former, in the nature of things, must be attended with loss of power over the resources which nature places within our reach, and by deterioration of faculties which need to be sharpened and improved by social attrition and social institutions. Population, and the remunerating markets which population affords, makes the food come from the rich lands, and depopulation drives men back to the poor ones, and arrests the progress of agricultural improvement. In this single sentence we have the truth and the whole truth, and it is one that should be committed to memory, and repeated daily and hourly by every man who has at heart the improvement of agriculture and the promotion of the interests of the country at large. It is the great law of agricultural economy, and for one, while resting under my present convictions of its truth and its importance, I shall dedicate the residue of my life to its propagation and its enforcement, feeble as is my influence in comparison with the magnitude of the duty that prompts to exert it. Until we can arrest the progress of depopulation in the old States, we can do nothing. Until then it will be of little use to discourse about manures

to form societies, and to offer premiums for fat hogs and heavy crops—no fatter nor larger after all than were produced fifty years ago. Correct our legislation, and so modify it as to make it the interest of the manufacturer and the consumer to come with their capital and their machinery as near as possible to the theatre of production, and thus diminish the cost of the work of exchange, and men will bring into activity the vast bodies of manure with which our swamps and river bottoms are filled—and those swamps and lagoons, sources of malaria and pestilence, will become sources of healthful abundance, and each little neighborhood will be an agricultural society of itself, abounding in all the means of self improvement. Accomplish that, and the natural demands for all the products of the field and the garden will hold out to the farmer and the gardener natural and ample rewards for constant exertion and improvement, far exceeding the hot-bed influence, and spasmodic efforts that arise from all the paltry premiums we can offer to the vanity or cupidity of individuals here and there: efforts that more nearly resemble the tricks and stratagems of the gambler, than the well-grounded results of causes of universal prevalence, and that are deeply rooted in a wise national policy. In literature, the true Mæcenas is the reading public, and this is true in all the pursuits of life. Let the farmer have the consumer near him, where the consumer, if let alone, would naturally sit down for his own benefit. Then will the farmer be enabled to clear and drain and cultivate the rich soils, and to enrich, with the manure yielded by them, the poor soils he now cultivates, and he will himself grow rich. He will then have schools at hand and means to educate his children. He will himself have leisure to study agriculture as a science, and then will agriculture improve. Until that time shall come, little of any thing like general and radical improvement can be hoped for.

The question now arises, how are these consumers and producers to be brought together? How is concentration to be made to take the place of dispersion? How are men to be enabled to clear, and ditch, and drain, and bring into cultivation their richest soils, instead of flying to waste their lives and labor on poor and distant ones? The answer is to be found in these brief words, "an efficient tariff of protection:" a tariff adopted by the whole nation for the express purpose of facilitating the transfer of the machines of Europe, and the mechanics of Europe, to our shores—that they may here eat the food on the ground on which it is produced, while converting into clothing the cotton and the wool, and thus enabling the farmer to save the cost of transportation, and to return to the great producer, the earth, the refuse of her products.

But, it will be asked, can we not manufacture as cheaply as other nations? We can. With the machinery now in use, and with the skill and industry of our people, superior as they are to those of Europe, we can obtain *in return for a given quantity of labor* larger quantities of cloth than are obtained in England, and *far* larger than in any country of continental Europe, and in a natural state of things no protection would be necessary. The state of things against which protection is needed is that unnatural one which now exists in England. Peace at home has given her wealth, but that wealth has been *driven* from the land by the laws of primogeniture entails, tithes, settlements, and an infinity of contrivances of the most injurious kind. Large estates are constantly in the hands of trustees, and managed by solicitors. Driven from the superior employment of agriculture, wealth sought the inferior ones of commerce and manufactures, and to find an outlet for ships and cloths, it became necessary to have colonies, and wars were made for colonies, which were valued only as they could be made to subserve the purposes of the owners of British ships, and British looms. For a century past has India been the scene of warfare, the only object of which

was to compel the poor Hindoos to buy cloth, and sell cotton that they would naturally have preferred to convert, and might more profitably have converted, into cloth on the spot where it was produced. Each successive province added to that great empire has been exhausted, and the process of exhaustion still goes on. But recently China has been the scene of murderous war, ostensibly for reparation for opium that had been destroyed, but really to *compel* the Chinese to open their ports to British manufactures, which they would naturally have done, had their interests made it desirable so to do.

That the system is unnatural, we need no better evidence than may be found in the fact that wars, and fleets, and armies are necessary for its maintenance. Were it one that tended most to the advantage of mankind, it would prosper most with peace, and peace would bring cheap government. Were it natural, it would benefit man, and it would take root and spread naturally. It is unnatural and unjust, as is abundantly proved by the presence of fleets and armies and guns and gunpowder, the emblems and instruments of violence and injustice all the world over. The system tends to compel the world to waste in the work of transportation the labor that should be applied to that of production, and therefore does it require to be forced, by aid of a colonial system, under which *subjects* are compelled to make their exchanges in the ports of Great Britain, and to consume, all over the world, the produce of British looms: and therefore does it require the vast machinery of war, supported by enormous taxes, that absorb one-sixth of the whole product of British labor and machinery.

If we desire other evidence that the system is unnatural, it may be found in the fact that it tends to compel the product of the great and permanent machine, for whose preparation centuries of labor are required, to follow the inferior machinery produced with small labor, and capable of being readily transported. It is a simple thing to bring the machinery of the grist-mill to the place where the grain is grown, and once done, it is done for ever. Not less simple is it to bring the shoemaker and the lapstone to the hides and the food—the spinning-jenny and the loom to the cotton—the machinery of the woollen factory to the place where the wool is grown, and once done, the work is finished, and the labor of transportation is ended. One grist-mill, costing $6000, that can be provided in a few months, will grind all the grain produced on many thousands of acres that have cost, perhaps, fifty times the amount of labor, expended during a series of years. So it is with the cotton-mill. It is the inferior machine, and the inexpensive one, when compared with the great cotton producing one. In the natural course of things, the inferior, lighter, and more portable machines go to superior ones; as the threshing-machine goes to the barn, and the prize goes to the tobacco. But England desired, and still desires, to compel the products of the superior one to go to the inferior. As well, comparatively speaking, might we be compelled to carry our wheat there to be threshed, and our tobacco to be prized. The land cannot, at any cost, go to the loom. The loom can, at small cost, come to the land. Being unnatural, the system is subject to perpetual change. At one time, prices are high, and soon again they are low. Thus we have seen, during the last quarter of a century, four terrible revulsions, by the last of which, every part of the British empire is at this moment agitated. Their effects may be seen most fully if examined in her colonies, which have been compelled to abide the changes of British policy, totally unprotected. Ireland has been ruined. Her manufactories have been prostrated, and her people are now perishing of famine and pestilence, because the consumer of food has been driven from the side of the producer of food and wool, by the perpetual variations of the British system. India is in a state of ruin. Even at this moment we see the effects of the

revulsion of 1847, in the downfall of dozens of great houses in Calcutta and Bombay. The West Indies are ruined. Canada is stagnant. Everywhere it is the same. The colonies are the mere playthings of British statesmen, and the attempt to establish manufactures, under such circumstances, would be followed by nothing but ruin. Throughout all the British possessions, land is, therefore, valueless, and agriculture makes no progress. To these variations it is due that tariffs of protection against British interference are universal, wherever the power of self-protection exists. England now desires free trade, but other nations cling more closely to their tariffs, feeling that *union at home is preferable to union with foreign nations and disunion at home.* We have disunion—our people are forced to fly to the west to cultivate poor soils, when, if they could unite with their fellow-men, they could eat the produce of the richer ones. Union cannot take place until the consumer can take his place by the side of the producer, and until he can do that, agriculture cannot flourish as it should do. Is not then the establishment of a system of self-protection, on broad national grounds, as a national, not as a party policy, worthy of the united efforts of agricultural societies, made up of men who ought to be supposed to understand best the interests of agriculture? Yet, what of this do we see or hear emanating from our State societies and from institutes, called American? Could such a system, rooted in the minds and hearts of the people, once have been established, we should have seen agriculture far in advance of the point at which it now stands, instead of retrograding even in such States as New York and Ohio; because the consumer would have been, for years, in the pursuit of his best interest, distributing prizes that would have been for the farmer the best stimulus for exertion in all the branches of his operations, and not like the silver cup, which rewards the fitful exertion of a few individuals nearest at hand, or most able to indulge in wasteful outlay. With such a broad, well-rooted, national policy—rooted in the convictions of the people—the farmer of the old States, whose children are running away, and whose estates are going to ruin, would have grown rich. He would have improved at once *his land and his mind.* If we desire to see the effects of dependence on foreign legislation, we have only to look around us at the moment. Last year iron was in demand in England, because that country was largely engaged in making railroads. It was high here, and various furnaces and rolling-mills were erected, and thrice as many would have been, had there existed any confidence in the permanence of the existing state of things. Now, *without any change whatever among ourselves*, these furnaces and mills have become unprofitable. Various persons connected with them have been ruined, and many of them will be closed. Next year iron may be high again, while in another year it may be low. All the print works of the Union will be ruined, if not ruined already. So thus does England go on, year after year, and revulsion after revulsion, destroying all around, because she is engaged in the effort to establish and maintain a system that is unnatural and unsound, and, therefore, unsteady. If we look at the past times in this country, we shall see the effect of British revulsions in the fact that almost every cotton or woollen mill—almost every furnace or rolling-mill—almost every canal or railroad—more than seven years old, that is to say, established prior to the last revulsion, has ruined those concerned in producing it. I believe it would be safe to say that nine-tenths of all of them have changed owners, under the pressure of changes produced in England. In almost every case where men have manifested enterprise, they have been ruined; and ruined not because of changes here, against which they could guard themselves, but changes abroad, against which they could not guard. It is to guard against these

changes that protection is needed. In a natural state of trade they would never occur. Cotton and woollen cloths, and iron, can be produced as cheaply here as in England, but to prepare the machinery for the production requires time and capital, and few are willing to incur the risk of finding themselves ruined by changes such as those which marked the year gone by. Every man wants something like certainty. Having that, he is content with small profits. Can there be any certainty under the existing system? There can be none.

Hence it is that we have had protective tariffs, notwithstanding the universal tendency throughout the whole country towards perfect freedom of action, and to the existence of those tariffs it is due that to so great an extent we have already seen the consumer take his place by the side of the producer. Had they not existed, hundreds of thousands of acres of rich lands that are now in cultivation, would still remain in a state of nature, and the men who cultivate them, in Massachusetts, and Rhode Island, and New Hampshire, and Vermont, would be now in Iowa, or Alabama, or Oregon, or Texas, working on the light, open, poor soils, upon which the poor settler *must* always commence his labors. That the effect of concentration has not been fully produced, has been due to the fact that the question of protection has, unfortunately, always been a *party* one, and not a *national* one. Had the tariff of 1828 been adopted as the *settled* policy of the whole nation, and continued to the present time, we should even now be the great manufacturers of the world, and tariffs would be no longer wanted. We should be now the most zealous advocates of free trade, and the reason why we should be is, that that tariff, made the fixed and determined policy of the nation, would have caused the transfer to South Carolina, Georgia, Alabama, Tennessee, and other States, in which cotton and food are cheap, of much of the machinery of Manchester to which those States still send their cotton to be twisted, and their food to feed the men who twist it—thus sending the hides and the food to the lapstone and the awl, instead of forcing the shoemaker to come with his lighter machinery to the cotton and the food.

It may be asked, if manufactures have brought with them the poverty of England, why should not such be the case on this side of the Atlantic? The answer is simple. The man who takes his place by the side of the producer of food and wool, aids the production of both by diminishing the quantity of labor and manure that has heretofore been wasted in the process of exchanging, and thus enables the farmer to apply more of both to the improvement of his land, and to that extent the manufacturer is useful, but no further. The less labor given to exchange, the more may be given to production. England has driven labor from the work of production to that of exchange, and her people have been compelled to neglect the improvement of her soils to engage in competing with the poor manufacturers of Germany, and India, and China, for their own markets, with the disadvantage of being at a distance from the place at which was produced the food they were to eat, and the cotton or wool they were to convert. The Englishman must under-work the Hindoo, or he could not pay freight and then supplant the Hindoo in his own market. In the endeavor to accomplish this, little children have been forced to perform labors sufficient to exhaust the strength of persons of double their age. Grown people have been forced to work twelve or fourteen hours instead of ten, and flour has been made to fill the crevices of cloths, in the manufacture of which but little cotton has been used. England was determined, *against nature*, to be the workshop of the world, and hence it has been that labor has been overtasked and under-paid, and hence it is that her people are poor. She was determined to be the workshop of the world, and hence have arisen the frauds that distinguish her

manufactures. The great object is to make her cloths look well, even if they drop to pieces at the first washing; and her guns look well even if they burst to pieces on the first fire. Such are the natural results of an unnatural system. She has been determined to tax the world for the maintenance of that system. Towards this country, that has been her policy from the time of its first discovery to the present hour; and flatter ourselves as we may with the idea of our independence of England, the independence is in name, not in reality. Along with political and nominal independence, we remain in colonial and real vassalage to the policy of England. In the best, most careful, and exact account of the soil, climate, production, and agriculture of the British Colonies before our Revolution, I lately noted the following passage; the policy it recommends has never been lost sight of. The author is here treating of the soil, climate, and productions of the then colony of *Georgia*. "Wool," says he, "we take in large quantities of Spain, *because* it is of a kind we cannot produce in England; our colonies on the continent of North America, south of New York, produce wool entirely similar to the Spanish; no staple they would produce would, therefore, be more advantageous to Great Britain. It is well known that a piece of fine broad-cloth cannot be made without Spanish wool; it is also known that the Spaniards have of late years made great efforts to work up their own wool; if they should succeed, or if they should by any other means prevent the export of it, our woollen fabrics, though they might not be stopped, would at least be burdened with a fresh expense and new trouble, all which would be prevented by encouraging the import of wool from America; and at the same time that this good effect was wrought, another would be brought about in cramping the manufactures of the colonies." In this respect England still treats us as colonies, and still cramps our manufactures. The author makes similar observations as to the policy of encouraging the growth of cotton in Georgia and other states, with views always subservient to the interests of England, who, in ceasing to be the mother country, has not ceased to be the step-mother. Her edict has gone forth that "all the world shall be taxed." How far she has succeeded is shown in the following passages from the work of Mr. Carey, to which I have already referred, and with which cultivators and manufacturers cannot be too familiar.

"The poor Irishman is, by the system, denied the use of machinery, and he obtains one yard of cloth for the same quantity of grain or pork that would give him two, three, or four, if he could place the consumer by the producer. He too cultivates poor lands, and then he travels to England and spends half a dozen weeks in obtaining a fortnight's wages. What is the extent of the indirect taxation here it would be difficult to calculate, but it is quite sufficient to account for all the misery of Ireland.

"The planter in Tennessee sells his cotton for five cents per pound. By the time it reaches Manchester, it costs eight. He buys it back again, obtaining one yard of cloth for two pounds of cotton, whereas, if he had the consumer of food in his neighborhood, he would obtain half the cloth yielded by his cotton, and would have three yards in place of one. He would then clear and cultivate rich soils, and would obtain a bale to the acre instead of half a bale, and would sell his timber instead of wasting it as now he does.

"The farmer of Ohio sells his wheat, grown on land that yields ten bushels to the acre, at seventy cents. By the time it reaches Manchester it is worth a dollar and a half, at which price, with the addition of numerous charges, the farmer buys it back: the result of which is, that he obtains for the produce of an acre of wheat ninety yards of cloth, the produce of about thirty pounds of cotton, for which the producer in Tennessee has received a dollar and fifty cents, and which could be converted into cloth for as much more. He cultivates poor soils, whereas, if he had the consumer by his side, he might clear and cultivate rich ones that would yield forty bushels to the acre, and he too could sell his timber.

"What is the extent of indirect taxation upon the people of the United States by means

of the system may perhaps be estimated if we take into consideration the following facts:—

"I. The labor annually expended in the construction of carts, and wagons, and ships, that would be unnecessary if the consumer and producer could be permitted to take their place by the side of each other, would produce as many mills and furnaces as would convert into cloth half the cotton and wool produced, and smelt the ore for making all the iron used in the Union. To the carts, and wagons, and ships, may be added the labor of horses and mules employed in the same wasteful work.

"II. The time lost by the persons employed in the work of unnecessary transportation and exchange; by those who are idle in whole or in part for want of a regular demand for labor; and by those who are on the road seeking for new places of residence; is more than would be required for the work of converting all the wool into cloth, and all the ore into iron.

"III. The labor that is now given to the work of cultivating poor soils yielding ten bushels to the acre, instead of rich ones that are capable of affording tons of food by aid of which poor soils might be enriched, would yield double the return could the consumer take his place by the side of the producer, and thus save the manure that is now wasted.

"IV. The labor that is now wasted in making and repairing roads through new states and territories, and among scattered settlements in both old and new states, if applied to the improvement of old roads would diminish annually, and largely, the cost of transportation of those portions of the products of the earth requiring to be exchanged.

"It may safely be asserted that the labor of man as now applied is, on an average, but half as productive as it would be were it possible for the consumer and the producer to be near neighbors to each other, and if so, it follows that the indirect taxation by aid of the colonial system is equal to the whole of the present product of the Union, which we have estimated at two thousand millions of dollars. If we wish evidence of the extent to which taxation is pushed by aid of this system, we need only to look to all the colonies of England throughout the world, Ireland, India, the West Indies, Canada, Nova Scotia, and South Africa, and we shall find exhaustion and depopulation universal, as it must continue to be wherever the power of self-protection has no existence."

The first object of man is the procurement of food, and of the raw material of clothing. The second is the conversion of both into clothing. The last requires more combination of action than the first, because it is secondary to the first. In all new countries food is abundant and the demand for labor is irregular, and much of both is wasted. Food and labor build mills and factories, but in such countries, no one person can command enough of either to accomplish such objects, although the combined efforts of a neighborhood might readily do it. In such countries it is that combinations of small capitalists—of the little farmer, who has a cart and horse, that he can contribute to the performance of the work, and a little grain not required for his own purposes—of the wagoner, who has his team at times unemployed—of the shop-keeper, who can supply clothing to the men engaged in the work—of the larger farmer, who has money that he can contribute towards the purchase of machinery, &c.—are most necessary to bringing the consumer by the side of the producer, and yet it is precisely in those countries that exists the greatest hostility to the adoption of measures calculated to produce concentration and union. In Massachusetts and Rhode Island, where wealth abounds, and where there are numerous individuals who could of themselves erect factories and make railroads, men readily obtain charters for enabling them to associate to trade in money, or to make cotton goods; and thus, says Mr. Carey—

"Little mills grow up, the property of one or two, and expand into large ones, in which all the little capitalists of the neighborhood, shoemakers and sempstresses, farmers and lawyers, widows and orphans, are interested: little towns, in which every resident has his own house and lot, and is therefore directly interested in their good management, and in all matters tending to their advancement; and each feels that the first and greatest of those things is perfect security of person and property. The habit of association is seen exercising the most beneficial influence in every action of life, and it is most seen where population and wealth most abound: in the states of New England. There, we see a network of association so far exceeding what is elsewhere to be seen as to defy comparison. The shipwright, and the merchant, and the more advanced and less active capi-

talist, unite with the master in the ownership of the vessel: and all unite with the crew in the division of the oil which is the result of the cruise. The great merchant, the little capitalist, the skilful manufacturer, the foundry-master, the engineer, the workman, and the girl who tends the loom, unite in the ownership of the immense mill: and millions of yards of cloth are furnished to the world by this combined effort on the part of individuals who, if they worked alone, could not have supplied thousands. The property holder of the city, and the little capitalists, are everywhere seen combining their exertions for the construction of roads and the building of steamboats, by the use of which the habit of union is increased. In every relation of life, the same tendency to combination of action is seen to exist. Everywhere, man is seen helping, and governing himself. That he may do this effectually, wealth is necessary: for men cannot live near each other while forced to cultivate the worst soils. Wealth thus produces union, which is seen most to exist where wealth most exists: more in the east than in the west, and more in the north than in the south. Union in turn produces wealth, which grows more rapidly in the north and east than in the west and south: and thus wealth, combined action, and power of self-government, with a constant increase in the respect for laws which they themselves have made: manifested alike by individuals and by States whose population counts by millions: and corresponding increase in the return to labor, are seen constantly advancing; each helping and helped by the other."

In the poorer States, those in which combination is most of all needed, there appears to exist an exceeding hostility to association. In some of the new States, the prohibition of association for trading in money is made part of the constitution. In all the States, west and south, there prevails an extreme jealousy of banks—among the most useful of all the machinery of exchange—while in Rhode Island and Massachusetts banks are made with little more difficulty than is required for opening shoe shops. In those States the currency is sound, because the trade in money is free. In other States the trade in money is unsound, because the trade is trammeled. In no part of the union has there prevailed so much jealousy of association as in South Carolina. Yet there is none in which combination of action is so much needed. If we desire to see the effects of that jealousy, as there exhibited, we may find it in the fact that the population diminishes, and that men fly from rich lands uncleared—from marl and lime—to waste their labor on the poor lands at the head of the streams in Texas and Alabama, that are more easily prepared for the plough, and do not need draining.

A hundred very small capitalists, men scarcely above the class of laborers, may build a small factory, at which labor, and food, and wool may be exchanged; and such a work may be accomplished many years before the same neighborhood will produce an individual possessed of the means for the execution of such a work. Such men, where they are to be found, do not combine, and the reason that they do not is, that they are not free to combine at their pleasure, for want of general laws facilitating such combination. They must seek charters—a work of labor and expense, often fruitless. The day, I trust, is not far distant, when the right of every set of men to unite on their own terms with each other, and to trade on their own terms with those who see fit to trade with them, will be distinctly recognised, and when association of dozens, or hundreds, will be formed as readily as are now partnerships of two or three. I have seen it stated lately, by a Cleveland (Ohio) editor, that the large establishment called the Cleveland Iron Manufacturing Company, had lately been built there, "the first organized under the general manufacturing law of the state;" and the editor exults in the anticipation that "Cleveland will, at some day not distant, take rank as one of the Birminghams of the Union."

If we desire to see agriculture advance, but one course is open to us: we must produce concentration for the cultivation of rich soils, and to that end, the consumer and the producer must take their places by each other. To use the language of Mr. Jefferson, in 1816, to Mr. Austin, of Boston, "We must now place the manufacturer along-side of the agriculturist." For the

accomplishment of that object, two things are needed. First, the adoption throughout the Union of the simple and beneficial principle of association, that has produced such wonderful results in Rhode Island and Massachusetts; and secondly, that of giving to the farmer and planter the protection—*for protection is a planter's and farmer's measure*—that is needed for bringing to the neighborhood of the farm or plantation the machinery requisite for the conversion of his food, his cotton, or his wool, into cloth; or of his food, his labor, his coal, and his ore, into iron. Population makes the food come from the rich soils, and restores that which has been exhausted. The policy that produces depopulation, scatters and drives men back to the poor ones. Concentration brings with it wealth, because it enables men to bestow their labor on productive soils. Deconcentration perpetuates poverty, because it compels men to abandon rich lands, best adapted to the growth of articles that will not bear transportation, such as the rich savannahs of Western New York and of South Carolina, to fly off to poor soils on the frontiers. We must arrest depopulation by giving adequate protection to the farmer, and then will the rich lands of New York give forth their products, by aid of which the soils already exhausted will be restored. Then will large farms be divided into smaller ones, each yielding more than the large one is now made to yield. Then will men come daily nearer to each other. Then will each man profit by the experience of his neighbor, and then will each be enabled, more and more, to devote his time to the study of the laws of nature, because his labors will be lighter and his leisure will be greater. With each step in this progress, the pre-eminence of the agriculturist will be more and more recognised. With each, it will be more and more seen that his pursuit is the one that most requires mind, and that best pays for it—that it is, *par excellence*, the pursuit of the gentleman and the man of science.

We need an effective tariff. By that I do not mean one that would be prohibitory. With an effective one, adopted by the whole nation, and after due deliberation, a revenue abundantly sufficient for all the wants of government, as at present administered, would be obtained. Such a tariff would, by degrees, become prohibitory, because it would cause the transfer of vast capital and labor to this country, and cloths and linens would be produced so cheaply that their importation would cease. The revenue of the government would by degrees diminish, and with each step of diminution, there would be a diminution of the expense of government, which would be compelled to make its election between economy on the one hand, and direct taxation on the other. To the latter no administration would venture to resort, and therefore every step towards the diminution of indirect taxation, by means of which money is filched from the pockets of the people without their knowledge, would be a step towards economy, and with each such step, the wealth of the nation would increase more rapidly, and the demands for the products of the farmer would increase, and with it his power to effect the improvement of his farm.

How far economy is needed, is obvious from the following facts:

The people of this country paid in the eight years which terminated in 1843, for their army and army establishments, $114,283,244; and for the naval establishment, $49,053,473.

To keep up one Seventy-four for a single year, costs $220,000, or half as much as have cost the 1,200,000 volumes now in the school libraries of New York. The building and equipment of the Ohio 74, and her repairs during three years, cost $834,845;* or more than would build almost thirty

* Sumner's "True Grandeur of Nations," which we commend, in the strongest terms, to the perusal of all our readers.

furnaces, or a dozen cotton mills, or pay for 2,000,000 volumes for school libraries.

A dozen such, at that rate, would cost as much as would build three hundred furnaces, or above one hundred GREAT cotton mills, or pay for 20,000,000 of books—one for every person in the Union—and good books, too! The maintenance of that dozen ships, after they were built, would cost as much as would place annually in school libraries eight millions of volumes, or build annually eighty or a hundred great furnaces, or fifty cotton mills, or make a hundred miles of railroad. Concentration, that would result from protection, would enable us to dispense with armies and fleets, and give us peace and wealth.

Compare, I pray you, the advantage to be derived from these two modes of operation, and determine whether your own interests and those of all the farmers and planters of the Union, will not be promoted by a system that has the effect of bringing the consumer to their sides, and thus enabling them to *double their products*, while diminishing their taxes. Diminished they will be, if the power of indirect taxation be diminished. Diminished they should and must be; for $5,000,000 ought to pay all the expenses of government: and $5,000,000 will do so when men shall come to learn that the great pursuit of man is agriculture, and that all other of his pursuits are valuable to him to the precise extent that they enable him to devote himself to the improvement of the great machine, of which it is truly said, that "the more you can take out of it, the more it is worth."

It is the great magazine of materials given to man: and it is the task of the *poor* man to apply himself to that portion of it which yields least abundantly, while requiring most labor. With each step in the way of improvement it becomes less a task and more a pleasure, and with each he has larger returns for less labor, for with each such step he cultivates richer soils. With growing cultivation its labors will become lighter, and with each step in its growth it will tend more and more to take its true position —that of the highest and most honorable pursuit of man—that which, of *all others*, tends most to the maintenance of peace among men, and most to the development of the minds of men.

NEW OXFORD SHEEP IMPORTED INTO DELAWARE.

MR. CLAYTON REYBOLD, in a spirit of enterprise worthy of all emulation, made a visit in 1846 to England, with general agricultural views, but particularly to look at all their *breeds of sheep*, and to bring home such as he should conclude would be most useful in our own country. After careful examination, he chose the *New Oxfords*, and accordingly imported some of extraordinary weight, both of carcass and wool. Some of them were taken to the State Fair at Saratoga last autumn, and although a premium was awarded them, we do not believe that they were generally approved, being considered by some too large. Whether this impression was conveyed to the owner, we do not know, but we believe in its existence and prevalence to a certain extent, and this prompts us to copy what follows, from a late number of the Journal of the Royal Agricultural Society of England. It makes a part of the "PRIZE ESSAY," for which the Society offered one of its liberal premiums, on the "*management of sheep.*" The writer was one of that large family, to be found in all parts of the world where

the English language prevails, known by the name of *Smith*—ROBERT SMITH.

"The New Oxfords are termed long wools, but more from the circumstance of their not coming under the denomination of Leicesters, than from their extra wool-bearing properties. They are bred principally in Oxfordshire and the surrounding districts, particularly in the neighborhood of Broadwell, the residence of Mr. Charles Large; Charlebury, the residence of Mr. Smith, and Sevenhampton, the residence of Mr. Handy, the most eminent breeders, and to whom *great credit is due for their exertions in raising this valuable breed to its present high state of perfection.*

"They are of large dimensions, and have a great propensity to fatten, arising chiefly from their wide frame, quietude and open texture of flesh, which is of quick growth, and consequently expands itself more rapidly than flesh of other qualities; but they do not possess that exactness of form peculiar to smaller animals, though they have a better carriage. *For many years the male animals have been eagerly sought after, with a view to increase the size and frame of other long-wooled breeds.*"

Such are the words of the author of an essay that took the prize in England from all competitors. Still, it may doubtless be said that they are not suited to poor land, poor pastures, and poor management; and would it not be lamentable were Providence to provide a breed of animals of any kind, that would make a remunerating return to men of indolent habits, who are content with poor land, and who prefer ignorance and sloth to diligence and activity of mind and body?

In the last number of the Journal of the Royal Agricultural Society of England, we have an instructive comparison of the consumption of food by large and small animals, which may be appropriately laid, in this place, before the readers of "THE PLOUGH, THE LOOM, AND THE ANVIL." We give, accordingly the letter in which the facts are detailed, to Mr. Pusey, with his remarks.

DEAR SIR,—I was from home on the arrival of yours, dated 30th September, or I should have answered it earlier. The lambs which I mentioned to you as having wintered last year were both of the Hampshire breed, 100 in each lot. I will with pleasure repeat what I stated on Wednesday last respecting the feeding and quantity, and also give you an account of the cost of each lot as well as the proceeds of the sale when they were fat. The two lots were fed at the same time, on the same food, and penned on the same ground, but were kept separate from the commencement. I allowed each lot when on turnips (because we did not slice the turnips, only the swedes) the same sized piece per day; and when on swedes, which we began about Christmas, 33 bushels (sliced) per day, and 18 bushels of excellent clover-chaff to each lot; and on the 20th of February, 1847, we gave them 1 lb. of oil-cake a day, on an average, until they were sold out.

	£	s.	d.
Bought in the last week in October, 1846.			
100 very large Hampshire Down lambs cost per head - - - - - -	2	1	0
100 Hampshire down lambs, weighing about 1½ stone less than above and very much smaller, cost per head - - - - - - - - -	1	15	0
	0	6	0
The latter were in much better condition than the large ones.			
Sold out from 28th March to 10th May, 1847.			
100 lambs which cost 41*s.* sold at Smithfield and Southall markets, realized on average with wool - - - - - - - - - - - -	3	1	3
100 lambs which cost 35*s.*, sold at the same markets, realized on average, with wool - - - - - - - - - - - - -	2	9	0
In favor of large lambs - - - - -	0	12	3

I ought to add that the markets were about 2*s*. per head in favor of the large lambs, the trade for mutton being about that difference, or rather more, when the large lambs were sold, which would leave 10*s*. 3*d*. instead of 12*s*. 3*d*. in their favor.

Nothing would be more conclusive and satisfactory than a fair trial, in the same manner, between 100 of Sussex and 100 of Hampshire Downs, both lots of their breed of equal value; that is to say, 100 of best Sussex against 100 of best Hampshire, kept on the same land and fairly tested out of doors, as a farmer would wish to winter them.

Perhaps you will be able to get a fair trial between the large and small breeds, and then publish the result, which would be more satisfactory than mine.

With much respect, I am, dear sir,

Yours truly,

GEO. SHACKEL.

Reading, Oct. 4th, 1847.

NOTE BY MR. PUSEY.

The above trial seemed to me well to deserve a place in the Society's journal, as throwing light upon the question whether large and small animals of the same race do or do not consume food in proportion to their respective bulk. This question is not merely interesting as a point of physiological science, but also in practical farming. A large body of farmers defend the Hampshire or West Down sheep, notwithstanding their plain appearance, by saying that this plain breed comes to a greater weight, and therefore makes a greater money return than the Sussex or true South Down. The breeders of South Downs reply that, if their sheep are smaller, more of them can be kept on the same farm. Here then the abstract question has a practical bearing. In this second instance there was a very decided difference between Mr. Shackel's two lots, yet the larger lambs were satisfied throughout with an equal allowance of each kind of food; and, though of the same breed, made a better return by 4*s*. a-head than the smaller sheep. This plain fact seems to warrant me in calling the attention of practical men to this point of farming.

PH. PUSEY.

There is probably no source of national wealth more underrated, and therefore so little availed of in proportion to its capability, as our resources for the production of mutton and wool. Far otherwise is it in England. In an examination by a committee of parliament in 1833, to inquire into the state of manufactures, commerce, and navigation, Mr. Henry Hughes stated, that the quantity of wool annually produced in Great Britain was about 995,000 packs of 240 lbs. each, or 238,000,000; and Lord Somerville, one of the most eminent agriculturists, did not hesitate to assert in the House of Lords, that in estimating the wealth of Great Britain, its lands, buildings, live-stock, public works and manufactures, the *sheep forms one-third*; in the first place, by the quality and quantities of its dung, which, in American estimates, is never brought into the account, (but which greatly multiplies in England the productions of the plough, and of the whole vegetable kingdom;) by its flesh, which serves for food; and lastly, by its wool, skin, and fat, which form the staple of the most important manufactures.

In twelve counties of Massachusetts there are about 150 woollen manufactories. How many mouths to be fed, of course, by the products of the plough! How many hands at the loom, that would otherwise be at the plough to increase yet more its surplus products!

THE WOOLLEN MANUFACTURES

AS THEY ARE CONNECTED WITH THE AGRICULTURE OF THE UNITED STATES.

The reader's attention is particularly invited to the letter from Mr. Samuel Lawrence of Lowell, (one of the most enlightened and extensive manufacturers of this country,) and to the reflections to which its perusal has given rise.

With so much waste land, particularly in all the States lying south of the Delaware, from which the proprietors draw not one cent of revenue in any form, and so eminently well adapted as these lands are to the growth of sheep and wool, who can learn without surprise, accompanied with a conviction that some serious error or evil exists in our management or legislative policy—that "there is not wool enough raised in the country, by 10,000,000 of pounds, to meet the annual demands of the manufactories," according to the declaration of a gentleman unsurpassed in candor and experience?

"I can point," says Mr. Lawrence, "to articles made of wool, *now imported*, that will require thirty millions of pounds of medium and fine quality to supply the consumption!"

Here the reader will bear in mind, that according to the last census, 1840, the entire clip of wool in the United States was but 35,802,114 pounds, while the addition to our population, by natural increase and immigration, is at the rate which will carry it, according to Tucker's "Progress of the United States," very nearly to 30,000,000, in 1860. It is not known to what particular description of goods Mr. Lawrence refers, as being "now imported," and of which the manufacture will require 30,000,000 of pounds of wool; but let it suffice, for the occasion, to state, that in the year 1844, of which the account is at hand, the whole amount of *woollen goods*, exported from Great Britain to all parts of the world, was of the declared value of £8,204,836, and of these, *more than a fourth*, to wit: £2,462,748, or more than $12,000,000 worth, were exported *to the United States!* Now, to return to the declaration of Mr. Lawrence, and looking at this question in the only light in which it interests us—in its *bearing on the welfare of the American farmer*—may we not ask, whether it be better for him that these goods, requiring for their manufacture 30,000,000 of pounds of wool, should be manufactured here, in our own country, by men, women, and children, placed "along-side of the agriculturist," and demanding his wheat and his corn, his fruit and his vegetables, his beef, pork, cheese, and butter; or that they should be fashioned beyond the broad Atlantic, by steam-power, and by pauper operatives, nearly the whole of whose pay for labor is expended for what they consume of the products of foreign agriculture? Which is better, in the long run, for the American farmer to send across the ocean, or to buy of a neighboring manufacturer, even under the suppo-

sition that he may have, in appearance, for it is only in appearance, to pay a little more for a particular article, while the machinery for its domestic production is in the process of being transferred and transplanted to his own immediate vicinity? For has not the competition, which has always followed encouragement and prosperity, invariably brought down the price of the home-made article below that which had been previously paid for the foreign fabric? On the same, or nearly similar principle, that the lazy and improvident young farmer, first postpones, and finally neglects, *to plant a vineyard or an orchard*, you would be persuaded not to transplant to your neighborhood the loom and the anvil—the tanner and the shoemaker; lest, for a short time, you might have to wait for the resulting advantages, forgetting the infallible axiom—that concentration of population creates demand for all that the soil can be made to produce, and begets improvement of *every sort*, bringing the food out of the rich lands, and putting all your capital into activity; while depopulation begets devastation, impoverishment, and ignorance, and drives your children to the west, there to lead a hard life of exposure and privation.

Three years since, Mr. Grahame, of a well-known and respectable publishing house in New York, put forth "statistics of the woollen manufactures of the United States, by the proprietor of the condensing cards." Though this account was in some respects defective at that time, and probably is at this time still further from being exact, it approached accuracy near enough to give us an idea of the number of woollen factories at that period, and thus gratify the curiosity of the reader, desiring to know something of the progress of a branch of industry so directly and extensively connected with the *landed interest*, as to warrant that interest, in requiring it, to be looked after and cherished by public sentiment, and by national (not *party*) legislation.

There were then reported to be *woollen factories*:—

In Maine	28	In Ohio	79
" New Hampshire	58	" Kentucky	9
" Vermont	76	" Indiana	6
" Rhode Island	50	" Michigan	6
" Connecticut	120	" Illinois	6
" New York	327	" Wisconsin	7
" Massachusetts	141	" South Carolina	1
" New Jersey	10	" Iowa	2
" Pennsylvania	101	" North Carolina	4
" Delaware	4	" Tennessee	2
" Maryland	16	" Georgia	3
" Virginia	18		125
	949		949
Making a total of			1074

But this must have been much short of the number, as it may be supposed, since Professor Tucker, in his "Progress of the United States," where something like order and philosophical deduction are brought out

of the chaotic census of 1840, puts down the number of woollen factories, five years before the time when this statement was published by Mr. Grahame, at 1420.*

In Connecticut, as we learn from the statistical report already referred to, the Thompsonville Woollen Company alone consumed upwards of 1,000,000 of pounds, or 2500 bales of wool. The population of the village was 1400, and of these, 1000 were employed by this company; as thriving and prosperous consumers, be it remembered, of the products of the farms and the gardens, the orchards and the dairies, in their immediate vicinity; and to whom the farmer and the gardener could sell, and with whom he could make his exchanges, without losing half his time and manure, and spending a large portion of the value of his products on bad roads in search of customers, as is the case where no manufactures exist.

The wages paid by this single woollen factory amounted to $125,000; and when it is considered how large a proportion of the wages of every class, and especially of the laboring classes, goes to pay for *food*, is it difficult to see how inseparably is the welfare of those who follow the plough interwoven with the prosperity of those who labor at the loom and the anvil, at the lapstone and the needle, the coal-mine and the iron-foundery? We pray you, reader, let us repeat, to bear in mind constantly, that we ask the question only in the light in which such questions are entertained by us—that is, *as they concern the interests of the planter and the farmer.*

The Tariffville Woollen Manufactory, in the same little State of Connecticut, (a perfect bee-hive, with a population of 300,000, on an area of 3,000,000 of acres,) consumed, in 1845, another 12,000,000 pounds of wool, besides 168,000 pounds of cotton, and 60,000 pounds of flax annually, giving constant employment to 1000 persons, men, women, and children, to whom was paid $150,000, to be here again expended, in very large proportions, among the farmers of the neighborhood for the products of the *plough;* and here again, the one sells and the other buys, with scarcely a fraction of the loss and expenses of transportation and exchange, in the shape of freights, and commission, and long journeys over bad roads, leaving the rich soils undrained, and the timber land uncleared, as must always happen in States that turn their face against the policy and the institutions that are indispensable to the healthy and prosperous growth of all the

* Here it may be remarked, that those who, as political inquirers, or for practical objects, desire to become familiar with the whole subject of sheep and wool husbandry, in all their bearings; and especially such as desire to appreciate more exactly the yet undeveloped capacity and resources of our country, to meet, profitably, the demands foreshadowed by Mr. Lawrence, are earnestly referred, for the ablest, most original, and comprehensive exposition, to the letters of Col. H. S. Randall, of Cortland village, N. Y., addressed, through the Farmer's Library, to Col. Allston, of South Carolina. These letters, illustrated by numerous engravings, will soon be published, and on sale in a compendious form, making a volume of some three or four hundred pages, which ought to find a place in the library of every American cultivator.

branches of domestic industry—preferring to send their cotton to be spun, and their wool to be wove, and their provisions, if sent at all, to be eaten at Leeds and Manchester, with all the deductions from the value of their own products, and all the additions to the cost of the manufactured articles, which must be incidental to such a system. Would the reader believe, that though three quarters of a century have elapsed since we proclaimed our political independence of England, she yet holds us in colonial vassalage, so strict as that, though she may allow us to manufacture "hob-nails," she yet contrives to supply, and we submit to buy of her, her produce and manufactures to the amount (in 1844) of more than $40,000,000,* while for the production and manufacture of the very articles thus imported, no country on the globe is better prepared than we are, in climate, in soil, in water-power, and power of every sort—natural, physical, and intellectual. Let the *American* farmer make for himself his own estimate of the value of the products of the plough, which it would take to meet the consumption of those who are employed in the manufacture of what we thus import from a single country—a country so deserving, it is true, of renown, for many of the most glorious fruits of civilization—and when he has made the estimate, let him say whether, while we still go to her for slops, and haberdashery, and copper, and brass, and cotton, and earthenware, and hardware, cutlery, iron, steel, linen, silk, tin, pewter, woollen and other manufactures, made by the labor of starving operatives, we ought not to cease from celebrating the Fourth of July, and making a vain boast of our "glorious independence!" Let him ask himself, whether it be not time to *act as a nation* with *one heart and one mind* upon the opinion, as declared by Mr. Jefferson, in his letter to Mr. Austin, in 1816, that "we must now place the manufacturer by the side of the agriculturist!" Let him compare the value of his farm with that of similar farms in the vicinity of Thompsonville, or Tariffville, or Lowell, and satisfy himself if the difference is not due, solely and exclusively, to the fact that consumers and producers are there in close connection with each other, and then let him determine for himself what would be the value of his farm, if he could by any means persuade the owners of machinery to build a Lowell in his neighborhood. Having done that, let him estimate the amount of clothing that he and his family would consume in the three or four years that might be necessary to establish that home competition that would bring down the price of clothing to the level of that of foreign cloths, and compare it with the advantage derived from having on the spot a market for all the products of his farm—his eggs, and milk, and veal, and beef, and potatoes—and for the spare time of his family, and see if the *real* gain would not surpass an hundred times the *apparent* loss.

Farmers and planters, you need not be told any more, that if you want heavy returns of wheat, or of butter, you must take care to feed your land

* £7,938,079, according to Macgregor.

and your cow. You need not be told, that one manure is good and that another is better—but you need be told what policy will bring in nearest proximity to your plough the loom and the anvil—the iron-monger and the coal-heaver—the tanner and the shoemaker—the brass-founder and saddler—the hatter and the wheelwright; in a word, what will draw men together instead of dispersing them, that so their demands for consumption may draw the produce from the rich lands, and leave you time to improve the great machine of production. Thus it is that wealth will increase—population will increase—intelligence will be diffused—education be provided for, and with it peace and good fellowship among mankind. War will be banished from our republic, as the despicable relic of ignorant and barbarous ages, and all the noble fruits of civilization be advanced and secured. To this glorious end, let union, harmony, and *mutual support*, and good fellowship prevail between the plough, the loom, and the anvil; then truly may we sing—

"Firm united let us be,
Rallying round our liberty."

Rely on it, all our industrial interests—all the trades and manufactures for which we have the soil—the climate—the water-power—the iron—the coal—the cotton—the wool—the hemp—the rice—the sugar—the provisions—all—all should join hands, in one bond of brotherhood, for all support, and all are supported by each other, and all must flourish, or all decline together.

One of the grossest and most mischievous errors that ever misguided a free people, has been the prevalent idea that agriculture, far from being itself a manufacture, is of a nature entirely different, and to which all other pursuits are naturally hostile. It is allowed that between all other industries there are friendly reciprocities of interests; but, after all, what is the production of wheat, and turnips, and corn, and cabbage, but another species of manufacture, in the fabrication of which the earth stands the farmer in the same stead that the loom does the weaver, and the forge the smith? If one wants wool, and oil, and wheels, and spindles, and the other wants coal and iron, does not the farmer want seed, and manure, and horses, and ploughs, and hoes, in *his manufactory?* and if the weaver wants the farmer's wool, and the blacksmith his corn and potatoes, does not he want the weaver's cloth, and the blacksmith's ploughs and horse-shoes, and a little of their money besides? Away, then, with this savage notion, that the farmer is a sort of land-pirate, whose hand should be lifted against all the world, because all the world has its hand lifted against him. All are manufacturers, but of different commodities. The farmer can no more manufacture a bushel of wheat, or a bale of cotton, out of the one or the other, without the use of the soil and the various tools and appliances, than the shipwright can build and fit out a vessel, without timber, and iron, and sails, and cordage.

Some cry out for free trade, and tell the planter to sell in the country where he can get most, and buy where he can buy cheapest. That might

do for the general average interest of the world, if all countries were united under one government, as all our States are under one confederation. But look at the effect, at this time, of dependence on the foreign market for the consumption of cotton. England is seized with a mania for speculation in railroads—all her capital is invested in railroad stock—a great crash ensues, and down goes the price of cotton, with ruin to our planters. For a view of these ruinous fluctuations in the price abroad, of cotton, sugar, wheat, and corn, see page 45.

Countries may be compared to a great fleet of ships. While all are under one commander, their movements may be combined—all made to harmonize and co-operate for mutual support and safety. But far otherwise, when each ship is under an independent commander. Then each must look out for itself, and harmony and identity of interests extend no further. So with us—those who follow the plough, the loom, and the anvil, all belong to the same ship; the same stars—the same stripes—protect us all. Be it then, the duty, and the action, of the commander—the government—to make all dependent on each other, and independent of the world. We have the soil and all the capacity to produce every thing, and to manufacture every thing. Let us, then, compel those who would manufacture for us to come with their capital and their machinery, and, as Mr. Jefferson said, place themselves along-side of the agriculturist.

INTERESTING TO WOOL-GROWERS.

From the Vermont Patriot

"*Lowell, (Mass.) Feb.* 10, 1848.

"My Dear Sir:—Your very kind and interesting favor of the 27th ult., duly came to hand, and should, if practicable, have received an earlier reply. The business of wool-growing in this country is destined to be of immense importance; and I am firm in the belief that within twenty-five years we shall produce a greater quantity of wool than any other nation.

"You ask, 'Is the present home-demand supplied?' There is not enough annually raised in the country by 10,000,000 pounds to meet the demand of the manufactories.

"You ask, 'What countries can we export wool to?' &c. This country will not export wool regularly for fifteen years, for the reason that the consumption will increase as rapidly as the production. I can point out articles made of wool now imported, which will require thirty millions of pounds of a medium and fine quality to supply the consumption.

"The business of manufacturing wool in this country is on a better basis than ever before, inasmuch as the character, skill, and capital engaged in it are such that foreign competition is defied. A very few years, and all articles of wool used here will be of home manufacture.

"Now I beg of you to keep the wool-growers steady to the mark. Let them aim to excel in the blood and condition of their flocks, and the day is not far distant when they will be amply remunerated. I shall always have great pleasure in hearing from you, and remain yours, most truly,

"Henry S. Randall, Esq., Cortland, New York." "Sam. Lawrence.

As the readers of this journal, interested in the wool trade of the country, may often have occasion to know the state of the English market, and to understand English accounts and essays on the same subject, it may be well that they should bear in mind the following table of wool weight:—

7 lbs. avoirdupois make	1 clove.
2 cloves or 14 lbs.	1 stone.
2 stones, or 28 lbs.	1 tod.
6½ tods, or 182 lbs.	1 wey.
2 weys, or 364 lbs.	1 sack.
12 sacks	1 last.
20 lbs.	1 score.
12 scores	1 pack.

THE GROWTH AND MANUFACTURE OF SUGAR,

AND THE DEMANDS OF THE SUGAR INTEREST OF THE UNITED STATES.

Boston, 27th May, 1848.

My dear Sir:—You have requested me to send you a communication on the growth, &c., of sugar in this country. It is a subject of vast importance, and demands a much more thorough investigation than I have leisure to apply to it. Indeed had I not felt it an irresistible duty to hold out the hand of help and fellowship to one who has so long and so ably devoted his pen to the cause of agriculture in all sections of the United States, as yourself, I should hardly have ventured to put on paper the following ideas, and you will consider yourself at liberty to omit any portion of them at your pleasure.

That government which constantly pursues an even-handed course in encouraging equally the industry of those who live under it, and in sustaining with its whole power the quiet, free, and unreserved enjoyment of the fruits of that industry, is the best government in the world for the happiness of the people. Now there is no difference in industry; it is the same whether applied to the loom, to the soil, to literature, or to any thing else—all is manufacture. Raising cotton is as much manufacture as spinning or weaving it; raising wheat as much so as grinding it into flour; raising sugar as much so as refining it. Nor can there be truly any difference in the effects of the promotion of these various kinds of industry on the general welfare of the country; where all are employed, all hang together as links of the same chain, are mutually dependent on each other, and the industry of each is entitled to equal consideration.

What would be thought of the farmer who supplied Lowell with vegetables, fruit or corn, petitioning for the free admission of cotton goods from Europe, that he might purchase his shirts or his bed-linen a little cheaper, and thus destroy the factories to which he sold his produce; or how can we sweep to destruction one whole branch of industry without more or less affecting many others? That country which exhibits its own industry flourishing, when from causes over which it can have no control all around is destruction, exhibits the superior wisdom and the paternal care of its rulers.

I am fully aware of the argument, that it would be folly to raise grapes in hot houses in the north, for the purpose of making wine, when a much better article could be imported from France at one-tenth of the cost. Extreme cases, however good for illustration, seldom have a practical bearing; but even

here if thousands of acres were under this glass cultivation, and a large population of glass-makers, coal-miners, carpenters, farmers, gardeners, &c., would be suddenly thrown irremediably out of employment by the sudden importation of cheap French wines, I think any body of men would hesitate considerably ere they changed the course of a stream of industry, which had by long and assiduous attention worked out its own quiet and prosperous channel.

The depressed state of one of the staple products of this country, *sugar*, has called forth these remarks, and I propose to make a very few observations on the cultivation of this article in the United States.

The first suggestion of common sense is to examine the state of the producers of this article in other parts of the world, in order to discover whether their superior means render our endeavors so hopeless as to determine an abandonment of this branch of industry.

Jamaica and the British sugar colonies.—Since the manumission of the slaves, the negroes work generally only four days in the week; their wages are from 1*s.* 6*d.* to 2*s.* per day. The whole testimony lately given before the House of Commons in England, making every allowance for interested views, exhibits heavy losses connected with this production, even at the prices of 1847, and the total abandonment of many of the sugar estates appears highly probable, unless the government applies some remedial measure, or speculation with its giant lever raises the value of sugar considerably.

Cuba.—That the cultivation of sugar, up to 1847, must have been very profitable is clear from the enormous increase of production, and the large sums which have been laid out in improving the manufacture. But even here it must be remembered that there has been a rise of nearly 100 per cent. in the cost of labor, that is in the value of slaves, which, independent of the low price of 1848, must check much farther extension.

In the small *Danish Islands* not much increase of consequence can be expected.

In the *French sugar colonies* the same measure of the abolition of slavery will unquestionably produce the same effect of decrease in production as it has in those of England.

It is now necessary to take a glance at the production of sugar in the *East Indies* and the *China Sea.*

In the former as well as in the latter, the largest proportion of the crop is extracted from the cane by small holders of land. The process by which this is effected is extremely rude, and the quality very inferior. The sugar called Khaur in the East Indies, is merely the juice, with all its feculencies boiled down to a certain consistency. This Khaur is often imported into Europe, but much of it is remanufactured in the country of produce by larger establishments. There, of late years, English capital has been engaged both in this remanufacture and also in the cultivation of the cane, one company having 700 acres planted. The Dhobah Company invested £200,000 in this business, and made profits at first, but in 1847 the balance of loss for the whole period of their operations was about £30,000. It required $2\frac{1}{4}$ cwt. of Khaur to make 1 cwt. of the lowest Dhobah sugar. The average yield is 450 to 500 lbs. sugar per acre, the wages of the native laborer is $2\frac{1}{2}$ cents per day, but it requires six of these to do the work accomplished by one negro. In Rajahmundry in the Madras Presidency, the capital required would be only one-tenth of that required in the West Indies, the cost of labor and buildings one-thirtieth. In 14 years—from 1833 to 1847—600,000 tons were exported from the East Indies.

On reviewing a vast body of evidence on this subject, it appears that the manufacture and production of sugar in the East Indies have resulted in

severe losses, but it is clear that these arise from extrinsic causes, such as high local revenues raised there in the shape of duties, rents, &c., imperfect manufacture, and expensive managements.

In *Manilla*, as before stated, the main crop is collected from small proprietors and remanufactured—but it is well known that when this rude produce does not fetch above a certain price, the population employ themselves otherwise, in collecting hemp, &c.; such is their position at the present time. The freight from Manilla to this country for sugar must be calculated from $\frac{3}{4}$ to 1 cent per lb. It is chiefly, nay entirely, used for refining into loaf sugar, and therefore hardly comes into competition with Louisiana sugar, which under its present method of cultivation is not adapted for this purpose.

But in the *Straits of Malacca*, where the cultivation of sugar has commenced and seems increasing, it appears as if the article could be produced at a very low rate. The land costs a mere trifle; the laborers employed are chiefly Chinese. These men will do twice as much work as the negro, and although great consumers of food, this consists chiefly of rice, which is very cheap; they will eat besides any kind of vermin, rats, cats, or dogs. They are very intelligent and understand the process of sugar-making. Contracts are often made with them to deliver sugar granulated but not drained at $\$1\frac{1}{4}$ per picul of 133 lbs.

On the sugar cultivation in *South America*, I do not possess any data of sufficient authenticity. Comparatively little comes to this country, nor is it probable that any great increase in its production can take place, owing to the increased difficulties in procuring slave labor.

I have gone through considerable evidence on this part of the subject; the impression remains on my mind, that the cultivation of sugar in the southern section of the United States is a legitimate and fair employment for industry, and that it cannot fail to be generally prosperous and steady, if the government will lend a fostering hand to protect it against frequent prostration by sudden and unforeseen accidents or speculations in foreign countries. Fair, steady competition it does not fear.

Sugar has now become a necessary of life; it is no longer a luxury, and the importance of independence from other countries for a supply therefore is undoubted. Nor should it be forgotten that in nurturing this branch of industry, we are preparing it for the wants of a coming population of one hundred instead of twenty-five millions, as at present.

There is however a second and more important view to be taken of this subject. It is of the improvement in the cultivation of the cane, and in the production and manufacture of sugar therefrom.

Now this cannot be accomplished except by the application of capital, and capital will not flow into this industry unless government place it in a state of stability. From what precedes, it must be seen that foreign competition imperatively requires all the improvements of intellect to be applied to this subject, and that those who neglect them will soon find themselves in the back-ground.

It is needless for me to add to the considerations which you have so often and so strongly urged on the subject of Colleges for the improvement of agriculture; but it is impossible not to see that agriculture comprises the growth of cotton and sugar as well as that of wheat or corn. What vast steps have been made in production of improved varieties of wheat, of maize, of barley, &c.—all grasses, like the sugar cane; why have there not been parallel improvements in this? is it not for want of the application of knowledge?

The cane, it is said, produces but little seed. This is the case with many plants which are constantly propagated by cuttings, or suckers, or tubers.

Nature has provided two ways of propagation, by seed and by buds; if the latter is constantly in use, there is an inclination towards a decline in the production of the former.

This will be immediately understood by reference to the remark of the farmer, who remembered the introduction of a favorite potato which he had cultivated for twenty-five years. He stated that at first it used to produce plenty of balls (seed), but that now scarcely any could be found on the plant. He thought that this had something to do with the potato rot, whereas it arose simply from the constant propagation by tubers (buds). Many other plants could be named, from my own experience, which clearly exhibit the same tendency. Now it is from *seeds alone* that improved varieties spring. A farmer will select the finest and largest ears of wheat for his seed. A gardener will select the pods of peas which contain the largest and the greatest number of peas for his seed; and those which are the earliest in flower and in pod one year will produce earlier than the others the next year: by following this process through successive generations, highly improved and permanent varieties are produced, liberal cultivation being always afforded. When propagation by seed is recommenced, the inclination to bear seed quickly returns, and thus cane seed may in a few years be had plentifully—it is only by understanding the process by which nature works that we can force her to attain the highest perfection.

The finest and most carefully selected seeds would in every probability give rise to varieties of the cane better suited to the climate and surpassing those in cultivation. This has been well exemplified in the native seedlings of various fruits raised in the northern sections of the United States, such as the apple, the pear, the strawberry, &c.; nearly all the good seedlings raised there are better suited to the climate, and generally superior in quality to those with high-sounding names imported from Europe.

In Tirhoot, in the East Indies, it was found that the Otaheite cane could not be cultivated with success after the second year of production, and the planters reverted with advantage to what is there called the native cane, and this was done by a company with English capital, so that it could not be referred to the prejudice or ignorance of the natives.

It is a question however yet to be resolved by careful experiment, whether the cane preparing but a small quantity of seed would give more or better juice than that preparing a large quantity of seed. In the manufacture of sugar from Indian corn, it has been found advantageous to take off the fruit soon after it has attained its form; in that from the beet, the sugar of the root disappears (is transformed) as soon as the flower comes to perfection; yet it seems *à priori* probable that a plant preparing a large quantity of seed should prepare a proportionate large quantity of juices, but then the seed would have to be sacrificed. These and numerous other experiments might be suggested, tending to increase knowledge on this subject, and to improve the breed and production of the sugar-cane, as well as to better its adaptation to the climate of our southern sections.

Another important consideration is, the best kind of soil or manure for the high development of the cane. The two first crops of sugar in the Straits of Malacca, from marshy land of a saline character, imbibed so much of these salts that the sugar always remained moist, and it was only after draining and exhausting the land of these saline qualities that the sugar would remain dry. It is suspected that something of this nature affects much of the Louisiana sugar, and that its unfitness for refining does not altogether depend on the want of ripening the juice; but there is no evil of this kind without its agricultural remedy.

The last, but by no means the least, important consideration I shall notice

on the subject of sugar is, the economy and improvement in the manufacture from the cane juice. I have not time, and perhaps not the ability, to dilate much on the subject, but I can offer the opinion that I have examined the latest publications on this branch with very little satisfaction or practical utility. It is well known that all vegetable juices, when first extracted, are compounds of such unstable chemical combination, that a few hours in a hot climate suffice to produce changes of great importance. Hence the necessity of placing them, (particularly that of the sugar-cane,) without delay in a stable, unchangeable state, by concentration with the application of the least possible degree of heat, is quite evident. To attain this object, evaporators of a novel and highly philosophical construction, manufactured by Walworth and Nason, of Boston, have been introduced this season for the first time at St. Croix, and they seem to have answered the most sanguine expectations, both as to rapidity of evaporation and augmentation of product of a superior quality. That part of the juice which is not sugar, and which is technically termed the feculent matter, must be first separated, and the uncrystallizable sugar or molasses must be afterwards got rid of by draining. In Cuba much has been done to improve the old processes, but it is a subject which is very far from being exhausted, for the ablest French chemists have proved by analysis of fresh juice that nearly the whole is crystallizable sugar. Science has been long and most assiduously at work on this branch of the sugar manufacture, and has already accomplished much; still, either from want of capital, of faith, or of knowledge, many of the improvements lie dormant or are but partially put into operation.

The objects which have dwelt on my mind, and which I have endeavored to show, however imperfectly, are—

That there is no good reason why the cultivation of sugar should not be a prominent and a permanent branch of industry in the United States.

That beginning, as all such do in the United States, with moderate capital, the government is called upon to protect it, in this its infancy—for in its progress it will render the coming immense population of America independent of other countries for the supply of an article of necessity.

That great improvements have yet to be introduced into this branch, by the careful application of science and agriculture, which require the employment of capital.

That the flow of capital in this direction can only be attained by the cultivation and manufacture of sugar being protected by the government, and thus rendered stable and productive.

On the means and method of applying this protection I will say nothing at present, except that more solid and reliable information could be obtained by the government, on all subjects of trade and manufactures, by the assistance of a permanent commission, with proper powers, always sitting at Washington. Their public reports, which might be ordered by Congress whenever these objects came up for discussion, would soon show whether this Commission contained the right men.

Yours most truly, J. G. TESCHEMACHER.

To J. S. Skinner and Son,
Editors of the Plough, the Loom, and the Anvil.

THE CATTLE TRADE OF NEW YORK,

WITH REMARKS ON THE RULES THAT PREVAIL THERE.

THE Cattle Trade of New York, though it makes no figure on 'Change, forms quite an item in our city's business. The new market opened on the 6th inst., and the number of cattle entered for sale since that time is as follows:

May 6 to May 8 - - - - - - - -	1755
Week ending May 15 - - - - - - - -	1747
" " " 22 - - - - - - - -	1089

We believe the larger numbers are unusual, and that 1000 to 1200 head weekly is about the average. Very few remain over from one sale to another. Monday is the great sale-day, on which nearly all the cattle received up to that time are disposed of. What few remain over are generally sold during the week to chance customers, while the new arrivals are held in hand for the next sale-day. The purchases are not made for our city alone, but Newark, Paterson, Bridgeport, New Haven, Hartford, Boston, &c., are regular buyers at these sales.

The various modes of computing the weight and value of the animals sold which are employed at different markets, must often perplex and mislead a reader not especially made acquainted with them. At each market, cattle are reported as selling at so much per hundred weight, and Boston prices are often if not generally lower than those of New York, though the cattle sold at Boston (Brighton) are generally driven by, if not actually bought here. The reason is, that here nothing but the naked beef—"the four quarters"—is counted and paid for in the cattle market, the hide and rough tallow being thrown in to the buyer; while in Boston "the *five* quarters" are counted; that is, the hide and tallow are computed in the selling weight, and so paid for by the purchaser. On the other hand, a New York "hundred weight" is one hundred pounds avoirdupois; in Boston, it is one hundred and twelve. (In Philadelphia, we believe, "the four quarters" only are counted, while there the "hundred weight" is one hundred and twelve pounds.)

The cattle are sold alive, thus paid for and driven off by the purchaser, though only "the four quarters" are allowed to enter into the computation. The rule is, that one hundred pounds in the gross weight on the hoof will give fifty-five pounds of beef, though the best cattle will of course exceed, while the poorer will fall below this standard. Generally, however, the parties agree on the weight as well as the price in making their bargain, so that few cattle are actually weighed out to the purchaser.

The spectacle afforded by the cattle market on a sale-day is an animating one. Here are drovers from Kentucky, Ohio, Illinois, and Western New York, who have been from three to eight or ten weeks on the road (driving on long routes only ten or twelve miles per day.) They are generally well-built, hardy, intelligent-looking men, fairly but not nicely dressed; while their boys, and other assistants in driving, manifest considerable originality and entire independence in the matter of costume, though many of them are paying their respects to the great city for the first time. The butchers and their boys, who come to drive home the cattle they purchase, form a distinct class; and among them may be now and then a speculator on the look-out for a rare bargain, or a neighbouring farmer looking for a drove to

pasture for a day or so; so that a sale-day draws together some one or two hundred people—possibly more—by whom ample justice is rendered to the substantial and inviting dinner served up at the hotel, at the unfashionable but convenient hour of 1, P. M. The charges here, we believe, are moderate; the guests, though many of them wealthy, being a class who visit New York, not for show, but for substance; not to waste money, but to make it: and the number of their drivers, and the indefinite duration of their stay rendering economy desirable. We did not inquire on this point, but we presume a drove from Kentucky, which sells for $5000 in our market, will have cost nearly half that sum in travelling expenses, from the time the cattle are collected to that when the drover reaches his home again.

Nearly all the cattle in market at this season are bullocks and oxen. There were very few cows and heifers on the ground yesterday. A great majority were three-year-olds.

We cannot conclude without calling the attention of our citizens to the imperative necessity of removing the slaughtering business from within the compact portion of our city. It is a shame that this has been neglected so long. The present practice is revolting to the senses and dangerous to the health of our people. We know no other city which aspires to cleanliness or exemption from contagion that tolerates the nuisance. Philadelphia, we are sure, does not; Boston never did, at least not within the memory of the present generation. The banishment of slaughter-houses from Paris, and their establishment in one place, at a proper distance from the city, is a reform for which Bonaparte is still gratefully remembered. New York has greater facilities, and at least equally urgent reasons for such a change. The new concern might be located on one of the rivers, a few miles above the city, so as to be thoroughly cleansed by a jet of the Croton daily, and so that one little steamboat, plying thence frequently to all the chief markets, might render the transportation actually less expensive than it now is. Why should this wait?

In the New York Register and Gazette we find the above remarks, on a subject curious for the general reader, and of practical consequence to a large class of agriculturists.

As to the various methods of weighing cattle, and other modes of computing their "heft," as they call it in New England, the reader is referred to that most profound and valuable work, that, in our judgment, we have ever seen, "VON THAER'S PRINCIPLES OF AGRICULTURE."

For the sake of having the English copy of it in our Library, we very lately gave twelve dollars for one, in Boston; yet the whole of it has been re-printed, word for word, in the Farmers' Library, making one volume, and may be had of the editors of this journal, one copy for one-fourth of the above-named price, with the addition of Petzhold's lectures on Agricultural Chemistry.

As to the weight of cattle, Von Thaër says, some persons profess to determine by the dimensions and measurements of particular parts of the living animal; and the rules for doing so have been published again and again, within our knowledge, for twenty-five years. But, says Von Thaër, truly, supposing this method to be applicable, with tolerable certainty, to the greater number of cases, the rules thus fixed upon could only be applicable to a particular and well-established breed; so that every breed would require its distinct formulæ, to be practically determined after much experience. But according to actual observation in England and in the United States, the quantity of net "butchers' meat" may be estimated with sufficient accuracy for fair and practical use, by ascertaining the *weight on the hoof.*

By net weight is meant what the beast weighs when hung up in the shambles, with his head, fore legs, entrails, and suet removed. Still the health and the condition of the animal is to be taken into consideration.

For the ox, not absolutely lean, but still not fatted, the following is the rule of the trade:

Take half the whole weight of the animal while alive, and add to it four-sevenths of the whole, and divide the sum by two; the quotient will be the weight of net meat. For example, suppose a live ox to weigh 700 lbs.

Half of 700 - - - - - - - -	350 "
Four-sevenths of 700 - - - - - - -	400 "
	750 "
Half sum - - - - - - - - -	375 "

In this case, every twenty pounds would yield ten and five-seventh pounds. But when oxen are a little fatter, it has been found that twenty pounds commonly yield eleven pounds of butcher's meat; and when they are completely fattened, twelve or twelve and a half pounds will be yielded by twenty pounds of live-weight; for experience has proved, that as an ox gets fatter, the proportion of his flesh to the refuse becomes greater.

Yet it does not follow that the meat becomes more palatable or wholesome, nor does it justify agricultural societies in the ridiculous practice of offering premiums for excessive obesity, that children and groundlings may open their eyes with wonder, exclaiming, "*Oh! what a monstrous fat beast!*" Monsters may they well be called, but *do they pay?*

Finally, the rule of the New York market appears to be about the fair thing between graziers and victuallers.

But we must on all occasions be true to our purpose, which is—what? Not so much to indulge in vain and oft-repeated lectures to the farmer and planter on matters of field practice, in the daily pursuit of their profession, and of which they have little to learn; our object and wish being rather to incite them to study their position for themselves, their social and political condition; to inquire and determine, calmly and dispassionately, whether any thing, and what, can be done by the action of government, in our domestic policy, and in our foreign relations, to increase and render more permanent the profits on what they do make.

Leaving foreign markets out of view, and looking to the articles of beef and pork, as they concern the American farmer, is it not better that all who consume them—the hatter, the weaver, the tailor, the iron-monger, the tanner, and the shoemaker; in a word, all who buy and consume the various commodities which he does, or which he could, raise for sale, should be as near to him as possible, even if, for any one or all of these productions, the consumer should pay a little less than they would produce in the foreign market? The nearer the consumers are, and the shorter and less expensive the transportation to them, the greater will be the variety of things he can cultivate with a certainty of a remunerating demand; his whole landed estate acquiring, in fact, from that very circumstance, the additional value which proximity to market never fails to impart. As his land cannot be moved, the true policy of the landholder is to bring as near to it as practicable the largest body of consumers, for, in proportion as he can do this, his pursuit will partake more and more of the nature of horticulture, and thus yield greater profits.

We lately passed a day, to us in a manner the most congenial and agreeable, enjoying his hospitality and walking over his estate, with that exceed-

ingly well-bred, well-informed farmer, Mr. E. Phinney, of Lexington, Massachusetts. A dozen pages might be profitably filled with a detail of what we saw, and what we learned. There were the cattle imported by the Massachusetts Agricultural Society, North Devons and Ayrshires, with their progeny, all well minded and well managed: but for this detail we have not time or notes at hand. Suffice what follows in corroboration of the undeniable axiom, that *concentration* is the thing to remove stones, clear up swamps, drain bogs, and fell timber, and make poor land rich, and rich land richer.

Viewing with admiration, we may say with amazement, the difficulties Mr. Phinney had encountered and overcome, in subduing his rugged inheritance, causing verdant meadows and fruitful orchards to flourish in place of bogs utterly impassable, and where the ground had been covered with stone, some of it in such large masses that from a great portion of his land it had been blasted, and removed by man and ox power, at the rate of more *than a ton to every six feet*, "what," thinks I to myself, "would a southern farmer say, if land were offered him for nothing, from which he had to remove a ton of stone for every six feet square before he could stick his plough in the ground?" But what will not the presence of abundant and thriving consumers do to give activity to landed capital? In contemplation of all we saw, surprise prompted the inquiry—"In the name of all that is wonderful, my dear sir, where do you find remunerating returns for this vast amount of labor? Where do you find a market for your $2000 worth of apples, for instance, taking, as you have done, sometimes eight barrels from a tree?" "Why," said he, "do you forget that besides Boston with its more than 100,000 thriving consumers, and the West India and the European market, to say nothing of *many other towns in this state*, we have here in Lowell 30,000 *fruit eaters*?" And this brought us to remember that there, in Lowell, with a water-power inferior to the falls of Potomac, and to many similar unimproved sites in the South, a single woollen-mill employs 1500 persons, male and female, manufacturing 119,000 yards of broad cloth, and 264,000 yards of kerseymeres, annually; the pay for which goes out in very *large proportion* to the neighboring farmers and gardeners, for food in every form that the land can be made to produce it—for it is, after all, with *food* that bricks are made, and saddles are made, and houses are built, and ships are manned and rigged. *Food, food*, is the great material, and mother earth the great machine of production: concentration always enriches—de-concentration always impoverishes her.

STEAM PLOUGHS.

PRESENT AND PROSPECTIVE USE OF THEM.

Mr. Wray, in his work on the cultivation of the cane and the manufacture of sugar, speaking of the *steam plough* in Demerara, and of the *effect of drainage* on the quality of sugar, makes some remarks that may be worthy of the notice of our friends "on the coast" above and below New Orleans.

"We all know the improvement in the quality of sugar that has resulted from the use of the vacuum pan, and improved methods of evaporation, &c.; but few allow the full importance due to the improved system of drainage, as now practised in Demerara. In former days the sugar

from this colony was of the most dark and inferior description, but recently the use of the vacuum pan and the better drainage of the cane lands, have, together, completely altered its quality, and raised its *value to a high standard.*

"The planters are also said to have hit on a plan of *plowing their land by the aid of a steam-engine*, that is at once simple and effective. The estates are usually about four hundred or five hundred yards in breadth, and from three to five miles in length, with a canal running up the centre, and a smaller canal or drain running with it, on either side of the estate; the engine is then fitted into a boat, which traverses the centre canal, and gives motion to the plough by means of an endless chain or rope attached to a wheel placed in another boat, which last takes up a position in one of the parallel drains or canals, so that the plough is drawn backwards and forwards between the two canals.

"As the plough arrives at the extremity of the field, the two boats move on the required distance; then the motion of the engine is reversed, and the plough returns: so that by this simple arrangement, the plowing of an estate is accomplished most expeditiously."

Mr. Wray goes on, contending, by a course of argument which we have not time to transcribe, but which we will give in a subsequent number, "that such an engine for plowing may be serviceably employed on any tolerably level estate, having roads, and which is not too rocky.

"What," says he, "the planter would like to avail himself of, is the great power, unwearying labor, and nice precision of the steam-engine. In the performance of such work as he would require of it, he would not wish for speed, either when stationary or when moving about the estate. However, this will be more intelligible after I have enumerated the chief labors which the auxiliary engines *may be expected to perform!* These comprise:—

"1. Plowing.
"2. Harrowing and *hainghering* until well pulverized.
"3. Plowing trenches six feet apart, for cane tops.
"4. Cleaning, moulding, and first-banking young canes.
"5. Bringing out cane from the field to carts and wagons in the road.
"6. Drawing cane carts or wagons to the mill and returning with green trash.
"7. Distributing the green trash throughout a recently cut field.
"8. Leveling banks and covering up cane trash, &c.
"9. Bringing manure carts to the field and distributing the same.
"10. Bringing sand to the field, if required, and distributing the same.
"11. Sanding the roads and rolling them, whenever required.
"12. Pumping water for irrigation, when necessary.
"13. Draining land whenever required.
"14. Drawing carts to the wharf with produce, and returning with coals.
"15. Sawing up timber into boards and planing the same.
"Besides many minor performances from time to time arising."

Such are the uses to which this experienced and intelligent planter pre-

dicts the power of steam will soon be applied. How instructive and surprising to those who live in the retirement of the country would be an enumeration of the various and wonderfully labor-saving purposes to which steam is now applied, in such a city as New York, to mechanical purposes, from the power of one up to that of a thousand horses, and with as much minuteness and precision, and as perfect control, as the shoemaker has over his awl and lapstone. It is ascertained that in Philadelphia alone, steam is applied to save manual and other more expensive power, in more than three hundred establishments, large and small.

What a pity that among agriculturists we have not many more of mechanical genius, such as Whitney, or Arkwright, or Stevens, or Bogardus. But, as Mr. Poinsett says, "agriculturists live apart and meet but rarely to take into consideration their common interests, and, when they do meet, remain together too short a time to originate or perfect any great measure of general improvement." But even these disadvantages would be obviated in a great measure by a system of instruction, which should secure for the sons of farmers a practical education adapted to their profession, embracing the sciences applicable to it—on the plan that the representatives of farmers liberally provide for those to whom life commissions and high salaries are to be given, and whose sole business is to keep their guns bright and their swords sharp, in preparation for wars.

A WORD ABOUT MULES.

If this too much abused and derided hybrid could speak, as did one of his far back ancestors, we should claim from them a vote of thanks, for what we have said, and caused to be said, in favor of their value, and their claim to kind consideration and treatment.

Many years ago, at our suggestion, for he needed no persuasion, the then remaining survivor of the signers of our Declaration of Independence, the venerable Charles Carroll of Carrolton, offered a piece of plate, with appropriate inscriptions, for the *best essay on the mule, in comparison with horses and oxen for farm labor.*

An admirable essay, on which the prize was worthily bestowed, was written by that inquisitive and active-minded observer and gentleman of various knowledge, Willis Pomeroy of Massachusetts. Since then, we have on various occasions embraced opportunities to vindicate the useful qualities of the mule, even for the saddle, over rough and mountainous roads; and in an essay on "THE NATURAL HISTORY OF THE ASS AND THE MULE," written while in the office of assistant P. M. G., we took further occasion to assert the excellence and economy of this underrated animal, as a labor-saving operative on a farm. The reader will see that he occupies the front ground in the design, which illustrates the title and purposes of "THE PLOUGH, THE LOOM, AND THE ANVIL," but he would not know, if we did not choose to tell him, that the place there now occupied by the mules had been assigned by the artist to a pair of sleek horses; on seeing which, we requested him to stick on a

longer pair of ears, and a smaller tail, and to otherwise modify the picture, in such manner as should indicate our preference for them over horses, for *farm work*. In a fox-chase, it might be otherwise. They might not, *under the saddle*, be so ready to go at timber; but when worked hard all day and turned out at night in a bare pasture to starve, as they sometimes are, it is admitted they are not slow to get over or through a fence, by hook or by crook—and who can blame them in such case? As to the longevity of mules, we find in a new work on the culture and manufacture of the sugar-cane, describing and comparing the East and the West India systems,—being the result of the author's sixteen years' experience as a sugar planter in these regions,—the following: "We know that the average working period of a steer, *or heifer* in Jamaica, under favorable circumstances, is ten years; but when a little extra care has been taken of them, we may safely reckon on fifteen years, [is not that extraordinary?] whilst a *mule*, with common care, will work for twenty, thirty, and even forty years. I have had four mules, ranging of an age from forty-five to forty-eight years each, as proved by the most undoubted evidence, and all of them at that age taking their regular spells in turn."

COMBINATIONS AGAINST FARMERS.

THE COMPLAINT IS OFTEN UNFOUNDED.

FARMERS are deceived and misled by the cry of combinations against them —*haud experientia loquor*. We have been ourselves misguided by the thought of combinations of other classes against them; but, on reflection, we have come to ask ourselves, what is more natural than for men to combine for common good? Is it not the foundation of all social organization and improvement? Why should not the iron-monger, and the coal-miner, and the wool-comber, combine with the wool-grower, and the grower of sugar and coffee, to secure a *national* policy, under which each shall have the benefit of the custom, and the support of all the rest? Above all classes, who so much interested as the cultivator of the soil, in having, as near as possible, as many as possible who are not cultivators, but whose thriving condition and employment shall enable them to buy, and freely consume the *products of the soil?*

Take the sugar-planter, and the wool-grower, for instance. If the latter is ruined in his business, by the importation of untaxed foreign wool, can he afford to throw sugar as freely as it would be palatable to do, not only in his tea and coffee, but in his pies and puddings? On the other hand, if the sugar-grower is protected from the rivalry of the West and East Indies, can he not more freely clothe himself, and all about him, with the staple of the wool-grower? In place of a stupid jealousy, founded on the apprehension of antagonist interests, neither true nor natural, let all true friends of the public welfare inculcate harmony of action, for the welfare of all. Every man who has any thing to sell, whether it be wheat, or rice, or sugar, or wool, or corn, or cotton, or *labor* of any sort, is directly benefited by that course of policy, and that state of things, which rears up in his neighborhood the greatest number of wealthy people to be competitors for, and consumers of, all he has to dispose of. This is common sense, and let every man of sense beware of the demagogue, who would incite the envy and the malice of the poor against the rich.

The impulse of every good heart, and well-informed mind, would be this—"Let me be as well-informed and as wealthy as I may, it is better for me that all around should be yet better informed, and more opulent—for their loss must be my gain—the tendency is ever to come to a level. Do not cities grow by the rise of capital and industry, and do not lands rise—other things the same—as they approach large cities?"

FOREIGN MARKETS.

WHAT THE FARMER MAY EXPECT FROM DEPENDENCE ON THEM.

From the Cleveland (Ohio) Herald.

THE following comparative table is mostly from Cook, Young, & Co.'s New Orleans Price Current. The date employed for **1847**, it will be perceived, was before the time of high prices, when the tariff of **1846** was operating in its full vigor:—

	April 24, 1848.	*April* 24, 1847.
Cotton, middling, per lb.	5¼ *a* 5¾	10½ *a* 10¾
Corn Meal, per bbl.	1 50 *a* 1 75	5 00 *a*
Flour, Ohio, &c., per bbl.	4 00 *a* 4 25	6 00 *a* 6 12½
Wheat, per bush.	80 *a* 95	1 25 *a* 1 33
Oats, per bush.	23 *a* 28	50 *a* 55
Corn, per bush.	35 *a* 30	70 *a* 80
Gunny Bags	8 *a* 9	26 *a* 27
Pork, Mess, per bbl.	8 00 *a* 8 25	15 50 *a* 16 00
Pork, Prime, per bbl.	— *a* 7 00	11 25 *a* 11 50
Bacon, sides, per lb.	3¾ *a* 4	3 *a* 3¾
Bacon, shoulders, per lb.	2 *a* 2¼	5 *a* 5¾
Lard, per lb.	4 *a* 6	8 *a* 9
Sugar, per lb.	1¾ *a* 4¾	5½ *a* 7½
Molasses, per gal.	15 *a* 19	26 *a* 30

The above is not, however, a fair illustration of the discrepancy between the high prices which men predicted were to rule as the effect of the tariff and those which actually do exist. We now present a comparative table of prices more to the purpose, for which we shall not go out of our own market:—

	May, 1848.	*June*, 1847.
Flour	4 87½ *a* 5 00	7 00 *a* 7 50
Wheat	1 01½ *a* 1 09	1 50 *a* 1 52
Corn	31 *a* 39	65 *a* 66
Pork, Mess	8 25 *a* 8 50	*a* 14 50
Lard	5 *a* 5¼	8 *a* 9

Great Britain and Ireland take the bulk of our exports of flour, meal, wheat, and corn.—Here are the figures from September, **1, 1847**, to the commencement of the present month:—

FROM	FLOUR, *bbls.*	MEAL, *bbls.*	WHEAT, *bush.*	CORN, *bbls.*
New York	137,085	33,343	177,934	1,064,101
New Orleans	15,544	24,997	33,194	970,025
Philadelphia	1,563	25,121	- -	166,145
Baltimore	770	1,796	4,010	97,388
Boston	704	3,900	- -	119,993
Other Ports	-	- -	- -	34,813
Total	155,666	89,157	215,139	2,452,921
Same time last year	1,685,734	455,666	1,570,614	11,245,775
Falling off	1,530,068	366,509	1,355,475	8,792,854

ON THE COMPARATIVE VALUE OF PEAS AND CLOVER.

Connemara, April 19th, 1848.

My Dear Sir:—I hand you enclosed a note of my operations upon the pea with plaster, and regret that circumstances beyond my control have delayed it so long. I am so well satisfied of the great beneficial effects of the plaster, that I have gone to a great expense of labor in preparing to grind the article for myself; by this means I procure it at a cash cost varying from 18 to 20 cents the bushel. I have not entered at all into the argument of the superiority of the pea fallow over one of clover; that will come more properly from you, if you should agree with me in that superiority. Much in this question depends upon the propinquity to markets. Clover *may be*, with a good market for hay, butter, cheese, or the like, a more profitable crop than the pea—but supposing all things to be equal, the points in which the pea is superior to clover are—

1st. In the fact that it takes but two years to come round to a hoe crop, and of course this requires less land—a great advantage where there is a stationary supply of hoe hands.

2d. Clover generates several kinds of rusts, which are injurious to a rewarding grain crop—whereas the pea leaves the grain more free from vermin of all kinds than any other crop I know.

3d. When the ensuing crop is of a kind that ought to be kept very clean in its early stages, clover is very objectionable, (this is especially the case with the cotton crop,) whereas the pea cleanses the land better than any other crop. It is destructive to the wire-grass, and I believe will be found to be so to that nut-grass of which the Louisiana planter complains so much, and the peculiar name [Coco.—*Ed.*] of which I cannot at this instant recall.

4th. The pea crop is amazingly advantageous as a great stimulus (and a very cheap one) to the supply of pork, which is a cash article.

But do not understand me as undervaluing the clover as an improver. I believe it is exceedingly advantageous, and the perfection of hog raising and fattening is to have good clover to put them on in May and June—good oats to turn them to in the field, in order to let the clover take its sure growth, and then good ripe peas to fatten them with, and with these appliances the unmerchantable corn on an estate will make pork cheap and abundant, and will save the Southern States a vast sum which they annually pay for that article.

I fear you will think me extravagant, and even foolishly so, when I speak of turning hogs upon an oat field—yet at a distance from market, so great as to render the cultivation of so bulky an article very unproductive, I find it to be a saving of corn and an improvement to the land, besides a great saving of labor at an important period of the corn crop to make my hogs harvest my oat crop.

I congratulate you on the very handsome manner in which your petition to the Senate was launched by Mr. Johnson of Maryland, and hope you will meet with success, but I fear the reverse.

Whenever your convenience and pleasure permits, I shall be very happy to see you at this place, 13 miles below Halifax; and with reminding you of your engagement to keep me out of print,

Believe me, very respectfully yours,

J. N. D.

There is another use of the pea, which I confess I began with great doubts, and have continued from a conviction of its utility—viz.: when the corn is

ready to lay by, sow peas in it, and then do the necessary work of laying by. In bad seasons and early frost, a failure of the crop is generally the result—but even then the vine greatly aids the land, and if the season be a usual one, in this climate it produces well, and I cannot see that it injures the corn, although I feared it. I plaster the pea this season at the rate of 50 lbs. to the acre.

Notes on the above.—The above was courteously and kindly intended merely to envelope the following communication that accompanied it, but while we know the writer will excuse, we are equally sure the reader will thank us for sending both along together, as they came.

In regions where clover will "take," as they call it in Maryland, it is hard to calculate the value of it. A single crop in some parts of that State, Prince George, Anne Arundel, and Calvert counties, for instance, brings poor land, that would not yield two barrels of corn or one hundred pounds of tobacco, at once up to 6 or 8 barrels of corn and 800 or 1000 pounds of tobacco. There it is the poor, soft, and yellow-looking land, with broom sedge, that is most quickly and magically improved by clover and plaster. The use of these, in the region referred to, has, in hundreds of cases, raised the value and selling price of lands from 8 and 10 up to 30 and 40 dollars in five or six years. But, strange to say, in many, perhaps the larger portion of the State, they produce no such effect. Now, if the efficacy of plaster or sulphate of lime, acting on clover, were referable to its power of promoting the growth of the latter by attracting moisture or ammonia, why should it not possess THAT power, as well in one place as another? May we not then infer that it acts on something *in the land*, converting it into food for clover, which something, whatever it be, exists in certain soils and not in others? It is a remarkable fact about plaster of Paris, that the least modicum of it seems to answer all the purposes of a larger quantity? We once heard Mr. Tolbert, one of the most upright and exemplary planters in Prince George, say, that he *had known* half a bushel to the acre have all the effect of any larger quantity.

We may be allowed here to express our satisfaction in the belief, that Mr. D. heartily unites with those who are persuaded that American agriculture is destined to prosper and to find its surest and steadiest market in the prosperity of every other branch of industry, prosecuted by those, in *our own* country, who manufacture the raw materials, and consume the products of the American farmer. We do not know what may happen to be the cast of his politics—for we can safely say, that in thirty years of study to know how and in what way practical agriculture can be best advanced, and its rights and claims most effectually asserted and maintained, we have never cared to know to what party the man belonged, who could *give us information* that would enable us to add even an iota to the stock of such knowledge as might prove useful to the practical farmer. That Mr. D. has no interest to mislead others, or to be himself deluded on this great question for the country, suffice it to say, that his annual stake in agricultural produce is to the tune, we believe, of considerably over 100,000 bushels of corn annually!!

As to the Editor's memorial, in behalf of the plough, so kindly and so eloquently presented by Senator Johnson of Maryland, is it not enough that it sought some action of government in behalf of the *landed* interest, to ensure it to be buried in the tomb of the Capulets? Had it been a memorial praying for a military exploration or survey, or analysis of some substance for *death*-dealing purposes, Congress would have granted 10, ay 20,000 copies or maps at a breath, without inquiry or hesitation—what, let us ask, after more than six months' session of Congress, have the Military Committees said or done? and echo answers—*what?*

SOUTHERN SENTIMENT

ON THE POLICY OF ENCOURAGING DOMESTIC INDUSTRY.

To those whose opportunities enable them to mark the progressive changes of public opinion, on great questions of national policy, nothing can be more apparent than the spread of opinion in the Southern States, that the time has arrived when, to follow up the declaration of Mr. Jefferson, in 1816, "we must now place the manufacturer along-side of the agriculturist." Of this fact, the proofs are numerous and conclusive. We have seen it stated, it is believed, in that excellent journal, the *Southerner*, conducted, at Richmond, by our friend J. M. CRANE, with singular zeal and intelligence,

that upwards of ninety companies were incorporated by southern legislatures, during the last wintersessions, for manufacturing, or for kindred purposes.

The subject is not otherwise particularly attractive for us than as it is intimately connected with the welfare of the cultivators of the soil. The sentiment of which we speak tends to the establishment in the old States of a fixed populatino, not engaged in agriculture, but which will be consumers of all that agriculture can produce; in a word, it shows that the time is coming when public men will be forced to establish and maintain, as an *American, national* policy, a system, under which we shall have *concentration* instead of dispersion.

We have pleasure in preserving, as an evidence of the sentiment to which we have referred, the following extract from a gentleman in North Carolina, who, with the highest capacity to judge of what is best for the landed interest, unites the assurance of fidelity, to be found in the consideration that his own interest is deeply and intimately connected with it:—

"The alteration that you propose making in the publication of 'The Farmers' Library,' I think a judicious one, and should you succeed in effecting a purchase, I think that I can venture to promise as many as five or ten subscribers. You shall have my good wishes, as well as my support, in your efforts to induce the consumer and manufacturer to settle along-side of the plough, believing that a tariff for the protection of the manufacturer is, *in effect, a protection to agriculture itself.* The man who could induce our southern agriculturists to vest their surplus capital in the erection of manufactories, sufficient to work up one-half of the cotton and wool that is produced in the Southern States, 'would deserve better of the *southern* country than all the race of its politicians put together.' Could my friend and neighbor, Mr. Thomas P. Devereux, be induced to give you the result of his experiments in the pea culture, I have no doubt he would communicate results that would surprise your Maryland friends.* Should business or pleasure ever induce you again to cross the Roanoke, it would give me pleasure to make the personal acquaintance of one, with whose writings and efforts in the cause of agriculture I have been familiar from my boyhood. My father (now no more) was for many years a subscriber to the American Farmer, and whatever fondness I now have for such pursuits, was acquired from reading that work. For your health and prosperity, I am, dear sir,

"Your ob't ser't, R. H. S."

ON THE CULTURE OF THE GEORGIA, OR COW-PEA,

AND ITS VALUE AS A FERTILIZER.

My Dear Sir:—I owe you an apology for the delay which has taken place in the performance of my promise to give you some account of the effect of the field-pea, or the Georgia pea, or the cow-pea, (as it is indifferently called,) upon worn or exhausted lands. Accident brought before me, several years ago, very strongly, its renovating power, when sown broadcast as a fallow crop. I had known and valued it for years, but had no idea of the extent of its effects until the time I speak of. Another accident suggested to me the probability that as it was a papilionaceous plant, gypsum might have the same specific effect upon it that it had on clover, and a slight trial induced me to make a number of more accurate experiments, conducted as follows: I laid off portions of several fields in squares of one acre each, and sowed the whole with peas. About the time when they began to put forth their

* It will be seen that he has had the goodness to do so.

tendrils, I sowed each alternate acre with different quantities of plaster, beginning with five bushels, and going as low as one. The effect was apparent, and about as striking as upon clover. But as my object was to ascertain the effect upon ensuing corn crops, in the fall and after the pea vines were dead, I sowed upon selected portions of the field similar quantities of plaster; I then had every thing plowed in, and suffered it to lie until spring, when the whole was planted in corn. The difference was striking from the time the corn came up, and although the result varied as to the amount of product, I was satisfied there was an increase upon those squares where the plaster was sowed upon the growing pea, of about fifteen to nine. I could not detect any difference between those squares where the plaster was sowed upon the dry vine and the residue of the field. Being satisfied that the improvement over-paid the expense, I began upon a larger scale, and the following are the results of two crops, one of peas with plaster, and the other of corn. I ought to say, that the number of acres, and the crops, were not accurately measured. The first being ascertained by the number of corn-hills, and the crop by measurement in cart-loads:—

1. A field, containing about 75 acres, worn by long cultivation in corn and cotton, produced, in 1845, 750 bushels of corn, and in 1847, after the fallow crop of peas with plaster, the crop was 1650 bushels.

2. An old field, containing 27 acres, which was cut down, plowed up, and suffered to lie one year, was planted in corn in 1845, and produced 400 bushels. In 1847, after peas and plaster, the crop was 750 bushels.

3. On a field, containing about 160 acres, part worn, and part old field, (No. 2 being a part of it,) the crop of 1845 was about 2500 bushels. This was such a crop as I had a right to expect, compared with other lands, and other crops upon the same land. The crop of 1847 was 4781 bushels. This crop was stored to itself, and was delivered as a part of the sale crop, and the result is strictly accurate. It would probably have measured more, had it not been from a combination of accidents which prevented its being gathered until the 22d of January.

4. An old field, treated in every way as No. 2, but better land, containing 20 acres, produced, in 1845, 200 bushels of corn, and in 1847, 600.

No. 5. A field, worn out by alternating crops of corn and oats, and then as pasture, containing 35 acres, produced, in 1845, 350 bushels of corn, and in 1847, 650. This land is not equal in natural fertility to any of the fields above mentioned.

I ought to add, that in none of the above cases, was the land naturally poor in its native growth—all but the last were very fertile; that they had all been greatly injured by hard cultivation, and that the maximum of their yield could hardly have been as high as 50 bushels to the acre. It is not my purpose to trouble you with a disquisition upon the mode in which plaster acts, nor of the causes why it so signally fails upon some land, and acts so powerfully upon others. My object has been to state nothing but facts, and in execution of that I have to add that grass is the great enemy of the pea when sown; that weeds do not seem to injure it, and that there are many sensible and well-judging men who contend that the crop is surer when sown in the month of June, upon the corn-stubble, and then plowed in, than when the land is first broken up with double ploughs, and the seed harrowed or plowed in. The cause assigned is, that the last method is more favorable to an early growth of crop (crab) grass than the former. I ought also to add, that I have been unable to perceive any difference upon the pea where five bushels of plaster have been sown upon it, and where the quantity was confined to a single bushel. I ought also to say, that the best mode of harvesting the pea is to turn a stock of hogs upon them when

ripe; that the preferable kind is the red pea, because it does not rot when exposed to the weather, and that care should be taken to choose that variety which combines productiveness of crop and luxuriance of vine.

ELEPHANTS USED AND RECOMMENDED FOR THE PLOUGH.

In his work on the cultivation of sugar, Mr. Wray says, "hundreds of active young elephants can be procured at from 50 to 100 dollars each: admirably suited for estates work of various kinds, but more especially for plowing—one of these animals will close-plow a full acre of land during a day, with the greatest ease to himself, and only requires to be attended by his keeper, in addition to the plowman.

"To perform similar work, that is chankoling, (hoeing,) an acre of land requires at least 50 Chinese laborers—which is a fact admitting of no denial. Is it not evident, therefore, that we cannot hope for a knowledge of the lowest price at which sugar can be produced in these settlements, until the plough is brought into general operation? Any one visiting Singapore can see a male elephant, named 'Rajah,' working daily on the estate of J. Balestier, Esq., (the American Consul,) and although the animal is only five years old, he will plow his acre of land a day with ease. I have repeatedly walked up and down the furrow with him, and been delighted with his performance. One man holds the plough, and another (the keeper) walks beside the animal, and directs him in his duty. The docile little creature obeys every word that is said to him, and (although no doubt sorely tempted) will plough all day between the cane rows without plucking a single cane. I am positive that a less number than fifty Chinese laborers could not dig up the same quantity of land that I have repeatedly seen this little elephant plow in a day. But independent of elephants, buffaloes and cattle abound, costing not more than $10 each on an average. These animals, if properly fed and tended, are excellent for plowing and other estates purposes. But above all other power, a *small auxiliary locomotive engine* is that which is best suited to the wants of the planter in these settlements—with it he could plow up his lands, pulverize the soil, and perform all the work already specified." The author goes on with details to show what would be the saving such an engine would accomplish.

In further recommendation of the elephant, he remarks, "I consider elephants of small size preferable to buffaloes on a sugar estate; and have no doubt that one will do more work than five buffaloes. In plowing, the elephant applies his weight to the draught in a peculiar and extraordinary manner; maintaining a constant and very steady pull, instead of that quick jerking motion so often imputed to him."

"They are better able to stand the heat of the sun than buffaloes, and I do not think them near so susceptible of disease, for with ordinary care they have been known to perform unabated service during upwards of fifty years. In Upper India among the natives, they have been known to labor upwards of eighty years."

Now it is quite probable that among our readers there may be not one who can make *profitable* application of what is here related, about *elephants in the plough:* but what of that? Has the farmer no right to expect to be provided with the curiosities of his profession, and with things that may be useful, only in being *entertaining? Has he no relish for such things?* If not, then are we mistaken in the character, as well as in the wants of our readers.

THE HORSES OF PENNSYLVANIA.

HOW TO BE IMPROVED.

Does not the importance of the subject, and the number of farmers interested in it, commend to general consideration the question: How far the improvement of the breed and quality of horses ought to be made the subject of *legislative action?* Does it not amount to a great public nuisance, that any lazy fellow, looking out for some means to live without working, should be allowed, at the first budding of the trees in every spring season, to mount on the back of any big, fat, *logy* stallion, and go riding round the country, to contaminate and deteriorate our stock of horses, in itself bad enough? When it is considered that the same food and care that are employed in rearing a worthless, heavy, straight-shouldered, splinted and spavined garron, would suffice for a well-bred, sleek-coated, well-formed, high-mettled hunter, or carriage horse, who can estimate the loss which ensues to the State, by neglect of the quality of the horses appropriated to breeding?

In Pennsylvania there are not less than 400,000 horses. Now does anybody doubt that by a government regulation, condemning the use of stallions, which a board of judges should proscribe as worse than worthless; and licensing only such as they would sanction, the whole stock of the State might in a few years be so improved as to insure an average appreciation of $10 per head; which would amount to $4,000,000? As to any objection on the score of *power*, the State government, representing the majesty of the whole people, may surely do what is not constitutionally forbidden. Is not the power which compels the farmer to submit his flour to inspection, and which seizes his "light" butter in the market, equal to the regulation of the quality of a horse, which is to meliorate or to poison all he crosses? So injurious, in England, has been the effect of reducing the weight and the distance formerly observed in racing, that a qualified writer has lately asserted, "I am of opinion that no one would undertake to contract to supply 500 well-bred, clean, sound horses, under eight years, perfect as hunters and equal to fourteen stone, (196 pounds,) with one month's notice, at 150 guineas ($750) each.

As it is incumbent on those who find fault to propose practical remedies, I would suggest that memorials be gotten up in the different counties, to the Legislature, to require all horses employed as stallions to be licensed under a board of well-known judges of what constitutes a horse worthy of propagating his stock. Let all who have horses for public use be bound to produce them at the court-house of the county on a given day of each year, say 4th of March. If not allowed to interdict, altogether, the use of blind, spavined, and curbed beasts, with bull withers and weak loins, let it be the duty of the judges to regulate the license by a *sliding scale*, making the license fee *lower and lower*, in proportion as the horse should be found to *rise* in excellence, and let the proceeds of this license be added to the infamously mean salaries paid to the teachers, male and female, in our common schools, not nearly equal, in many cases, to the pay of an orderly in the army, who cleans the horse or the boots of an officer, with his life commission as long as he remains above ground, and pension for his surviving family. If the Legislature, or municipal authorities, have power to tax dogs and stills; why not tax horses, which, when inferior, cannot be used without great prejudice to the farming interest? The effect would be to lessen the number of bad ones, and so to increase the support yielded to those of a better kind, that their services might be afforded at a lower rate, and as "like be-

gets like," the general result would soon be visible, in the general improvement and increased average value of the horses bred in Pennsylvania, to an aggregate amount of some millions of dollars. If any such opportunity offered for an equal increase of capital invested in manufactories or commerce, depending solely on an act of legislation, within the admitted competence of the representatives of the people; how long would it be before they, the merchant and the manufacturer, would cause themselves to be *heard and heeded?* But, as Mr. Poinsett says, farmers too rarely come together to confer for their general benefit, and when they do, wont stay long enough to devise any effectual measures to obtain the relief and protection which they have a right to claim. Hence does it not become the especial duty of agricultural associations to look to the course of public legislation, as it has been or may be made to bear directly on the landed interest of the State? Finally, would not this and subjects like this, be highly proper for the consideration of the Philadelphia Society (and all such throughout the country) for the promotion of Agricultural Improvement? Let the agricultural community see them thus moving in matters obviously calculated to achieve practical results, and a sense of self-interest and of justice would prompt them to seek the fellowship and membership of such associations; and we should no longer witness the (I was going to say scandalous) spectacle of indifference on the part of the farmers of Pennsylvania to the prosperity and success of an association of gentlemen formed exclusively for the benefit of the landed interest, and animated by the purest and most patriotic motives. A FRIEND OF THE PLOUGH, THE LOOM, AND THE ANVIL.

THE SHEPHERD'S DOG—VARIETY AND QUALITIES.

IN the last of a series of admirable letters on Sheep Husbandry, closed in the last number of the Farmer's Library, for which they were written, by Col. H. S. Randall, of Cortland village, New York; and in which the general subject has been presented and ably treated in all its ramifications—the Author gives an account of the various races of dogs employed in the care of sheep in different countries, with descriptive engravings of three of them.

Of these, the cut here used serves to represent what he calls the "*Spanish Sheep Dog*"—and as many of the patrons of this may not have been subscribers to that work, those of them who were will excuse us for repeating here a part of what is there said of a particular breed, of which this is the first account that we remember to have seen.

The shape is quite different from that of two large young Pyrennean sheep-dogs, sent some years since by General Lafayette to Mr. Skinner, then of Baltimore,—different as here exactly described by Col. Randall,—the latter being, though of equal weight, shorter on the leg, and of fuller body, with a mild countenance and temper, at once courageous and magnanimous, such as would lead them to spare the life of any fallen foe, except that of a sheep-killer, without expecting reproach from any brave or generous master.

The Spanish Sheep-Dog.—Of the origin of this celebrated race, I do not recollect to have seen any thing. I have observed them several times spoken of, latterly, in newspapers and agricultural publications, as the same variety as the Alpine Spaniel, or Bernardine dog. This, I think, must be an error, though there may be a general resemblance between the two species. Arrogante, on the next page, though a dog of prodigious power, decidedly lacks the massive proportions, both in body and limbs, of several Bernardine dogs, which I have seen, of unquestionable lineage. The *temper* and disposition of the two species, too, seems to me to be essentially different.

Mr. Trimmer, and various other foreign writers, speak in warm terms of

the value of the Spanish sheep-dog, for guarding the migratory flocks of that country from the attacks of wolves—staying behind to protect feeble and lagging sheep, &c. In the Memoirs of the Pennsylvania Agricultural Society, there is a communication from the well-known John Hare Powell, Esq., of Philadelphia, from which the following are extracts:—

"The first importations of Merino sheep were accompanied by some of the large and powerful dogs of Spain, possessing all the valuable characteristics of the English shepherd's dog, with sagacity, fidelity, and strength peculiar to themselves. . . Their ferocity, when aroused by any intruder, their attachment to their own flock, and devotion to their master, would, in the uncultivated parts of America, make them an acquisition of infinite value, by affording a defence against wolves, which they readily kill, and vagrant cur dogs, by which our flocks are often destroyed. The force of their instinctive attachment to sheep, and their resolution in attacking every dog which passes near to their charge, have been forcibly evinced upon my farm."

Arrogante—A Spanish Sheep-dog.

Arrogante, whose portrait is above given with admirable fidelity, was imported from Spain with a flock of Merinos, a number of years since, by a gentleman residing near Bristol, England. His subsequent owner, Francis Rotch, Esq., of this State, thus describes him in a letter to me, which, though not intended for publication, I will venture to make a few extracts from:

"I have, as you desired, made you a sketch of the Spanish sheep-dog Arrogante, and a villanous looking rascal he is. A worse countenance I hardly ever saw on a dog! His small blood-shot eyes, set close together, give him that sinister, wolfish look, which is most unattractive; but his countenance is indicative of his character. There was nothing affectionate or joyous about him. He never forgave an injury or an insult: offend him, and it was for life. I have often been struck with his resemblance to his nation. He was proud and reserved in the extreme, but not quarrelsome. Every little cur would fly out at him, as at some strange animal; and I have seen them fasten for a moment on his heavy, bushy tail, and yet he would stride on, never breaking his long, 'loping,' shambling trot. Once I saw him turn, and the retribution was awful! It was upon a large, powerful mastiff we kept as a night-guard in the Bank. He then put forth his strength, which proved tremendous! His coat hung about him in thick, loose, matted folds, dirty and uncared-for,—so that I presume a dog never got hold of any thing about him deeper than his thick, tough skin, which

was twice two large to fit him anywhere, and especially around the neck and shoulders. The only other evidence of his uncommon strength which I had observed, was the perfect ease with which he threw himself over a high wall or paling, which often drew my attention, because he seemed to me wanting in that particular physical development which we are accustomed to consider as necessary to muscular power. He was flat-chested, and flat-sided, with a somewhat long back and narrow loin. (My drawing foreshortens his length.) His neck, forearm and thigh certainly indicated strength. If the Spanish wolf and the dog ever cohabit, he most assuredly had in him such a cross; the very effluvia of the animal betrayed it. In all in which he differed from the beautiful Spanish shepherd-dog, he was wolfish both in form and habits.* But, though no parlor beauty, Arrogante was unquestionably a dog of immense value to the mountain-shepherd. Several times, he had met the large wolf of the Apennines, and without aid slain his antagonist. The shepherds who bred him said it was an affair of no doubtful issue, when he encountered a wolf single-handed. His history, after reaching England, you know."

Some portions of that history I cannot resist the temptation of narrating, as illustrative of the character of this interesting breed, and commemorative of the virtues of the stern, but honest and dauntless Arrogante. If his courage was tinctured with ferocity, and sometimes instigated by a revenge, going a little beyond the canon which permits bad debts to be paid in kind, he did every thing *openly!* He made no sneakish, cur-like attacks, on the heels of his foe. By him, as by Robin Hood and his merry men—commemorated by Drayton—

"Who struck below the knee [was] not counted then a man;"

and his spring was always at the *throat* of his quarry. But he made not that deadly spring until he gave "warning fair and true," and never without provocation.†

Soon after Arrogante's arrival in England, a ewe under his charge chanced to get cast in a ditch, during the temporary absence of the Spanish shepherd who had accompanied the flock and dog at their importation. An English shepherd, in a spirit of vaunting, insisted on relieving the fallen sheep, in preference to having the absent shepherd called, though warned by his companions to desist. The stern stranger dog met him at the gate, and also warned him with sullen growls, growing more menacing as he approached the sheep. The shepherd was a powerful and bold man, and felt that it was too late now to retract with credit. On reaching the sheep, he bent carefully forward, with his eyes on the dog, which instantly made a spring at his throat. A quick forward movement of his arm saved his throat, but the arm was so dreadfully lacerated that immediate amputation became necessary. To save the dog, which had but done his duty, *as he had been taught it*, from the popular excitement, he was shipped in a vessel which sailed that very afternoon, from Bristol for America. He was sent to Francis Rotch, Esq., then a resident of New-Bedford.

For a long time Arrogante would not pay the least attention to his new master; the voice of the latter would scarcely arrest him for a moment. After attempting, in vain, for several weeks, to obtain some recognition of mastership from him, Mr. Rotch chained him securely to a tree, punished him severely, and then, with not a few misgivings, released him. But he submitted, for he well knew that the punishment came from his master, and afterward gave a cold, haughty obedience to all required of him.

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* I never have supposed, from the several conversations which I have had with Mr. Rotch on the subject, that Arrogante was any thing less than a thorough-bred Spanish shepherd-dog. Mr. Rotch here means that he was an ill-favored individual of the family—and he thinks that this *may* be owing to a bar-sinister on his escutcheon, left there by some wolfish gallant. His temper was even *less ferocious* than Mr. Powell describes that of *his* Spanish dogs.

† Was there any thing *wolf-like* in all of this?

ON THE JERSEY, MISNAMED ALDERNEY, COW.

BY COL. LE COUTEUR,

Of Belle Vue, in the Island of Jersey.

The breed of cattle familiarly known throughout Great Britain as the Alderney, and correctly termed in the article Cattle, of the "Library of Useful Knowledge," "the crumpled horn," was originally Norman, it is conceived, as cows very similar to them in form and color are to be seen in various parts of Normandy, and Brittany also; but the difference in their milking and creaming qualities is really astonishing, the Jersey cow producing nearly double the quantity of butter.

The race is miscalled "Alderney," as far as Jersey is in question; for about seventy years since Mr. Dumaresq of St. Peter's, afterwards the chief magistrate, sent some of the best Jersey cows to his father-in-law, the then proprietor of Alderney; so that the Jersey was already at that period an improved, and superior to the Alderney, race. It has since been vastly amended in form, and generally so in various qualities, though the best of those recorded at that period gave as much milk and butter as the best may do now.

Ten years have elapsed since the attempt was first made by fixed rules to improve the form and quality of the Jersey cow. A few gentlemen, presided over by the then Lieutenant-governor, Major-General Thornton, selected two beautiful cows, with the best qualities, as models. One of these was held to be perfect in her barrel and fore-quarters; the other equally so in her hind-quarters. From these two the following points were laid down to be the rule for governing the judges in all the cattle shows of the Jersey Agricultural Society.

The accuracy of this arrangement is proved by the fact that no deviation from it has been made, the experience of ten years having only added to the scale the points for general appearance and condition.

Scale of Points for Bulls.

Art.		Points.
I.	Purity of breed on male and female sides, reputed for having produced rich and yellow butter	4
II.	Head fine and tapering, cheek small, muzzle fine and encircled with white, nostrils nigh and open, horns polished, crumpled, not too thick at the base, and tapering, tipped with black; ears small, of an orange color within, eye full and lively	8
III.	Neck fine and lightly placed on the shoulders; chest broad, barrel hooped and deep, well ribbed home to the hips	3
IV.	Back straight from the withers to the setting of the tail, at right angles to the tail. Tail fine, hanging two inches below the hock	3
V.	Hide thin and movable, mellow, well covered with soft and fine hair of a good color	3
VI.	Fore-arm large and powerful, legs short and straight, swelling and full above the knee, and fine below it	2
VII.	Hind quarters from the huckle to the point of the rump, long and well filled up; the legs not to cross behind in walking	2
VIII.	Growth	1
IX.	General appearance	2
	Perfection	28

No prize shall be awarded to a bull having less than 20 points.

Scale of Points for Cows and Heifers.

Art.		Points.
I.	Breed, on male and female sides, reputed for producing rich and yellow butter	4
II.	Head small, fine, and tapering; eye full and lively. Muzzle fine and encircled with white; horns polished and a little crumpled, tipped with black; ears small, of an orange color within	8
III.	Back straight from the withers to the setting of the tail; chest deep and nearly of a line with the belly	4
IV.	Hide thin, movable, but not too loose, well covered with fine and soft hair, of good color	2
V.	Barrel hooped and deep, well ribbed home, having but little space between the ribs and hips; tail fine, hanging two inches below the hock	4
VI.	Fore legs straight and fine, thighs full and long, close together when viewed from behind; hind legs short, and bones rather fine; hoof small; hind legs not to cross in walking	2
VII.	Udder full, well up behind; teats large and squarely placed, being wide apart; milk veins large and swelling	4
VIII.	Growth	1
IX.	General appearance	2
	Perfection for Cows	30

Two points shall be deducted from the number required for perfection on heifers, as their udder and milk veins cannot be fully developed. A heifer will therefore be considered perfect at 28 points.

No prize shall be awarded to cows, or heifers having less than 21 points.

The evil was, and still exists, that most Jersey farmers, like many others, never thought of crossing with a view to improvement, conscious of possessing a breed excellent for the production of rich milk and cream—milk so rich in some cows that it seems like what is sometimes called cream in cities—and cream so much richer that, from a verdant pasture in spring, it appears like clouted cream. But the Jersey farmer sought no further. He was content to possess an ugly, ill-formed animal with flat sides, wide between the ribs and hips, cat-hammed, narrow and high hips, with a hollow back.*

She had always possessed the head of a fawn, a soft eye, her elegant crumpled horn, small ears, yellow within, a clean neck and throat, fine bones, a fine tail; above all, a well-formed capacious udder, with large swelling milk veins.

Content with these qualities, the only question in the selection of a bull,

*Some time since, we were called on by Mr. Stetson, of the Astor House, to go with him and look at an Alderney he had just imported at a high figure. She was of white color, fine, with rich yellow skin, red ear, and crumply horn, but so much higher and better formed, so much more nearly resembling the "improved short horn," than any Alderney we had ever seen, that, not aware of the degree of improvement described and illustrated in this paper, we were half-persuaded she could not be a genuine Alderney; but if this account of the improved Alderneys be well founded, it re-establishes her claim to legitimacy. And if, in the process of the melioration of shape and properties here spoken of and exhibited, there has been no sacrifice or impairment of the milking properties peculiar to the original Alderneys, all we have to say is, that the art of animal modification has been carried to a higher point than we knew of, though such things have been with us a passionate study for thirty years.

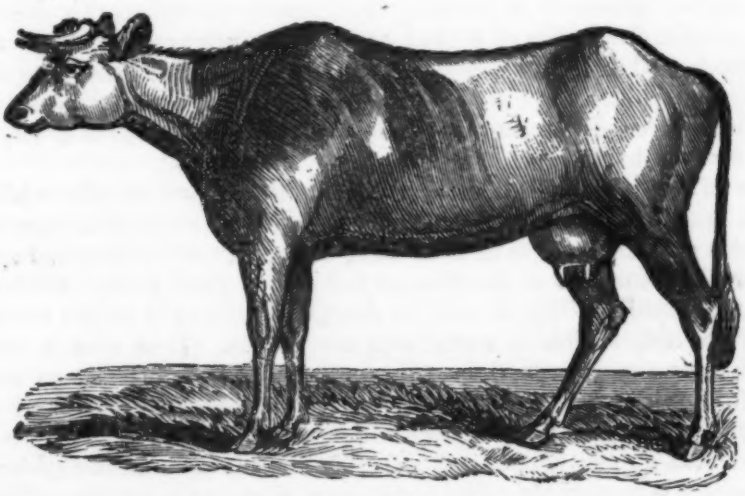
We well recollect that many years ago, there was a lot of genuine Alderneys imported in Baltimore, by the means and agency of that *then* wealthy, and *then* much courted, and always enlightened and patriotic merchant citizen, D. A. Smith. This choice herd was distributed through the neighborhood, and traces of their fine qualities for butter may yet be seen in the products of the Waverly, the Hampton, and other dairies, on the breakfast tables of the hospitable citizens of Baltimore.

The points of the improved cow in this case, were she not labelled, might be taken for an Ayrshire or short-horn in miniature.—Eds. P., L. & A.

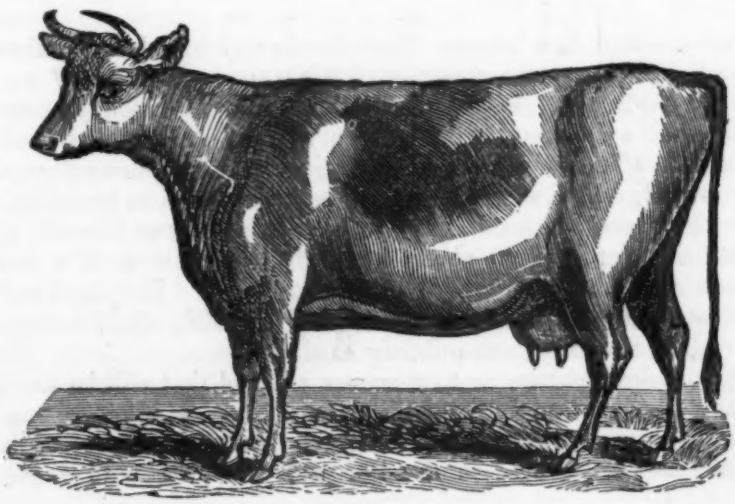
among the most judicious farmers was, "Is the breed a good one?" meaning, solely, had its progenitors been renowned for their milking and creaming qualities? But the mere attention to this was one of primary importance in a circumscribed spot like Jersey: it may have been quite sufficient to establish an hereditary superiority in the most needful quality.

It may also have established it with a rapidity that could not have been obtained in a wide-extended country like France. Hence, perhaps, the present superiority of the Jersey over the French breed.

Some idea may be given of the difference in the form of the ancient and the improved breed by the following sketches:



The OLD JERSEY COW, from 1800 to 1830, still to be seen in some pastures. The following points would be taken from her:—cheek large, 1—ewe neck, 1—hollow back, 1—cat ham, 1—flat side, 1—not ribbed home, 1—hind legs crooked, 1—general appearance, 1. In all 8; these deducted from 26, the number less the pedigree, leaves 18, which was about the average number the best cows had at the formation of the Society.



1843, Portrait of "BEAUTY," a prize cow, 4 years old, bred by Colonel LE COUTEUR, at Belle Vue. She has already produced 11 lbs. Jersey, or 11 lbs. 13 oz. imp., of rich yellow butter, weekly, in May, from 19 quarts of milk daily. She was awarded 27 points, as a 2 year-old heifer.

The Jersey cow is a singularly docile and gentle animal; the male, on the contrary, is apt to become fierce after two years of age. In those bred on the heights of St. Ouen, St. Brelade, and St. Mary, there is a hardiness and sound constitution that enables them to meet even a Scotch winter without injury; those bred in the low grounds and rich pastures are of larger carcase, but are more delicate in constitution.

Of the ancient race, it was stated, perhaps with truth, that it had no tendency to fatten; indeed some cows of the old breed were so ungainly high-boned, and ragged in form, Meg Merrilies of cows, that no attempt to fatten them might succeed—the great quantities of milk and cream which they produced probably absorbing all their fattening properties.

Yet careful attention to crossing has greatly remedied this defect. By having studied the habits of a good cow with a little more tendency to fatten than others, and crossing her with a fleshy, well-conditioned bull of a race that was also known to produce quality and quantity of butter—the next generation has proved of a rounder form, with a tendency to make fat, without having lost the butyraceous nature.

Some of these improved animals have fattened so rapidly while being stall-fed, from the month of December to March, as to suffer in parturition, when both cow and calf have been lost; to prevent which it is indispensable to lower the condition of the cow, or to bleed in good time. Such animals will fatten rapidly. Their beef is excellent; the only defect being in the color of the fat, which is sometimes too yellow. It is now a fair question, whether the improved breed may not fatten as rapidly as any breed known?

Quayle, who wrote the "Agricultural Survey of Jersey," states "that the Ayrshire was a cross between the short-horned breed and the Alderney."

There is a considerable affinity between these two breeds. The writer has noticed Ayrshire cows that seemed to be of Jersey origin, but none of them were said to have produced so large a quantity of cream or butter; nor was the butter in Scotland of nearly so deep a tinge of yellow as the most rich in Jersey. One Jersey cow that produces very yellow cream will give a good color to butter produced from two cows affording a pale-colored cream.*

It is not doubted that crosses from the Jersey breed have taken place. Field-Marshal Conway, the governor of this "sequestered isle," as Horace Walpole termed it, and Lieutenant-General Andrew Gordon, who succeeded him, nearly half a century back, both sent some of the best cattle to England and Scotland. If pains were taken, the race and its consequents might be distinctly traced, which might lead to important results in breeding.

In the "Farmers' Series," at the article "The Angus Breed," a portrait of a beautiful heifer is seen; she is said to have been "out of a very small cow, with a remote dash of Guernsey blood in her." Her dead weight was estimated at 130 or 140 stones. She sold for 50*l.*, after having obtained several medals, and had been publicly exhibited.

The grand desideratum is to discover a breed that will be useful to the grazier, the dairyman, and the small farmer. In so small a spot as Jersey, it is difficult to cross the breed essentially—a great step towards it is gained by crossing the cattle bred in the low rich pastures with those of the

* The senior editor of this journal had, many years since, on a farm, near Baltimore, a single Alderney in a herd of eight cows, and well remembers, that an honest Irish dairy woman begged that *that* cow might not be sold, as her milk served to color the butter of all the rest.

exposed hills on the western or northern coast: these being smaller, finer boned, of a more hardy constitution, and feeding on a short, rich bite, impart strength of constitution and hardihood to the larger and more delicate animals of the sheltered low grounds.

It is believed that cattle are generally more healthy and free from epidemics here than in most countries. This may be attributable in some measure to the saline particles which, being so frequently in suspension over the island, are afterwards deposited on the herbage, and tend to its salubrity.* After heavy gales, it is frequently found that the grass all across the island has a strong saline flavor. So partial are cattle to this flavor, that they will greedily devour grass which has been watered with sea-water which they previously rejected. Two pipes per acre, spread from an ordinary watering-cart, or from a pipe which may be made to pour into a long deal-box perforated with holes, will be found of great utility where sea-water or salt can be obtained at small cost.

The Jersey farmer treats his cow with gentleness and care; it might be more correct to say that his wife does so. On good farms she is usually housed at night after the end of October to the end of February, if heavy rain, hail, or snow prevail. It is deemed to be healthful to give a cow a short run daily through the winter, excepting in stormy weather. At this season, which is usually several degrees warmer than in the mildest part of Devonshire, she is fed with a certain portion of straw, from 10 lbs. to 20 lbs. of hay, with about 10 lbs. to 20 lbs. of parsnips, white carrots, turnips, or mangel-wurzel.

The small portion of grass which she may pick up in the winter, with the above quantity of food, enables her to produce a rich and well-colored sample of butter till within six weeks of parturition.

At this period, which is usually regulated to take place about the month of March or April, just when the cow being in full milk may soon be placed on the fresh spring pasture in April or May, she is an object of extreme care. On calving, she is given a warm potation of cider, with a little powdered ginger. Quayle hints that pet cows are further indulged with a toast in their caudle.

The calf is taken from the cow at once, and fed by hand. It may be well to advise that, on the first occasion of calving, the calf should be allowed to draw the cow fully; for no milking by hand will so completely empty the udder, nor cause the milk-veins to swell to their full development, as will the suction of the calf.

Some of the early meadows produce rich grass in March; but the general flush of grass, which comes on generally late in April, is the period to which the Jersey farmer looks forward with anxiety. The cow is then tethered to the ground by means of a halter 5 or 6 feet long: this is appended by a ring and swivel to a chain which encircles her horns, closed by a ring and bar; the other end of the halter is fastened to a chain 6 or 8 feet long, which is connected by a swivel and ring to a stout iron stake a foot long; this is driven into the ground by means of a wooden mallet. The cow having this circular range of 12 feet or more, is compelled to eat it clean. She is usually moved thrice a day, and milked morning and evening, on many farms at midday also. Under this system, the writer has owned four cows that produced eight-and-forty pounds Jersey, or above 51 lbs. imperial,

* We believe in this from our own observation. How well young cattle thrive and grow in our own country, that are driven in spring from the forest down into the "salt water country!"—Eds. P., L. & A.

weight of rich yellow butter per week, in the month of May and part of June.

In very hot weather in July or August, it is advisable to shelter the cow from the heat and flies; otherwise these tease cows to such a degree, by forcing them to run about incessantly, that they have no time for repose or for chewing the cud; they, in consequence, afford much less milk or cream.

It was anciently thought that cream from the Jersey cow was too rich for making cheese. Mr. Le Feuvre of La Hogue, who has a fine breed of cows, tried the experiment two years since, and succeeded to admiration. It was made from the pure milk, cream and all, as it comes from the cow. It was found that the quantity of milk that would have produced a pound of butter afforded 1½ lb. of cheese.

From the quantity of milk which produced a cheese of 20 lbs. weight, the *drainings* of the curds and whey, on being churned, yielded 4 lbs. of butter. This butter was of an inferior quality when eaten with bread, but was superior to any other for the making of pastry; it was peculiarly hard, and of excellent texture for such use in hot weather. The writer has tasted cheeses from Mr. Le Feuvre's farm, quite equal in quality to the richest double-Glo'ster.

On one or two farms besides General Fouzel's, butter is made from clouted cream in the Devonshire mode; but as this is not peculiar to Jersey, it is not noticed further than that 10 lbs. of butter are usually made in five minutes by this process. The usual way of procuring the cream is by placing the milk in pans about six inches deep—the glazed shallow earthenware having taken place of the unglazed deep vessels.

It is admitted that the richest milk and cream are produced by cows whose ears have a yellow or orange color within. Some of the best cows give 26 quarts of milk in twenty-four hours, and 14 lbs. of butter from such milk in one week. Such are rare. Good cows afford 20 quarts of milk daily, and 10 lbs. of butter weekly, in the spring and summer months. Butter is made every second and third day.

Lactometers indicate the degrees of richness, or cream, which the milk of any cow affords, with great nicety. This varies with different food. The mode is to fill the lactometer up to zero with the first milk that is drawn from the cow in the morning; then, when the udder is nearly emptied, to fill a second lactometer with the residue of the milk, throwing a little out of the lactometer, to refill it to zero with the very last drops which can be drawn from the cow: these will be nearly all cream. The lactometer filled with the first milking may only indicate 4 degrees of cream, while that filled with the last milking may indicate 40 degrees of cream. Then, by dividing the sum total, 44, by 2, we have 22 degrees of cream, which a very good cow will produce; others so little as 10 or 15.

Jersey butter, made when the cows are partially fed on parsnips, or white carrots and grass, in September and October, when salted and potted will keep till the following spring, preserving as well as Irish butter, with a much less rank flavor.

The present price of the best Jersey cows, including points and quality, is from 20*l.* to 30*l.*; and up to 20*l.* is given for the best heifers. Yearling bulls, of the best breed and points, from 10*l.* to 15*l.*

MISCELLANEOUS SCRAPS.

The Hatching of the Eggs of Poultry.—The following table will show that there is a great difference in the period of hatching, according to the mother bird employed, and other circumstances.

Eggs of the	Period of incubation. Shortest.	Mean.	Longest.
Hen hatched by a turkey	17	24	28
Duck do. do.	24	27	30
Turkey do. do.	24	26	30
Duck hatched by a hen.	26	30	34
Hen do. do.	19	21	24
Duck do. do.	28	30	32
Goose do. do.	27	30	33
Pigeon do. do.	16	18	20

Composition of Butter.—Butter, says Dr. Thomson, contains, as usually obtained, foreign matter, consisting of water, and curd or casein. One hundred parts of butter produce

Casein	0.94
Oil	86.27
Water	12.79

To the casein and water is owing the *tainting* of butter. To render butter capable of being kept for any length of time in a fresh condition—that is, as a pure solid oil—all that is necessary is to boil it in a pan till the water is removed, which is marked by the cessation of violent ebullition. By allowing the liquid oil to stand for a little, the curd subsides, and the oil may then be poured off or it may be strained through calico or muslin into a bottle and corked up. Bottled butter will thus keep for any length of time.

Transit of Live-Stock.—[One could wish that the Statistical Society of Philadelphia would cause inquiry to be made as to the expense of live-stock travelling on the great thoroughfares to this city: similar to the following which we find in an English paper.] On an average three fat bullocks weigh one ton. On the road a fat bullock travels on the average 15 miles in one day, costing per day 1*s.* or ¼*d.* per mile. About 5½ lean bullocks weigh one ton; these travel from 15 to 20 miles per day, say 17 miles, costing on an average of seasons 3*s.* 6*d.* per 100 miles, say ¼*d.* per mile. On an average there are four ordinary horses to a ton: travelling on the road from 14 to 20 miles per day, say on an average 17 miles, costing per day 4*s.*, or say per mile 2·9*d.* Twenty fat sheep weigh on average a ton: on a road they travel about 11 miles per day, costing say per score (this differs, however, very materially, according to season and locality) 6*d.*, or per mile about ½*d.* Sixteen pigs on an average weigh a ton: they travel on the common road about 21 miles a day, costing per score about 9*d.*, or per mile per score ½*d.*—*Jour. Stat. Soc.*, vol. 9, p. 113.

Salt.—For sixteen years after I came to this farm I was every year more or less subjected to great loss by the cob-worm or grub, particularly the oat crop after lea or grass land of one year old; and being now on this farm upwards of thirty years, I have made use of salt for these seventeen years bygone, at the rate of two to three cwt. per acre, which only costs from 4*s.* to 5*s.* per acre, and not one cob or grub has, during that long period, set its face in one field of this farm; and this year, although many of my neighbors round about me have suffered most severely from the cob, the fields on this farm are as free from it as if there was no cob in the country. I may mention that I sow the salt broadcast eight to ten days before sowing the oats.—*R. K., Finglassie.—Gardeners' Chronicle.*

[We have understood that salt has been used with very decidedly good effects, on a considerable scale, applied to the turnip crop, by Mr. George Williamson near Baltimore, and would like to know the particulars, both as to the time and mode of application, the result, and particularly the cost!—Ed.]

Experiments on Depths of Sowing.—Oct. 23—Planted, at 3 inches distance, 16 seeds of wheat, taken from one fine ear. Two were deposited at exactly 1 inch deep: two at 2 inches deep; two at 3 inches deep; two at 4 inches deep; two at 5 inches deep; two at 6 inches deep; two at 7 inches deep; and two at 8 inches deep. The land was in good heart, and finely pulverised or meliorated 1 foot deep, on purpose for the experiment; the situation facing the south, and in the middle of an open field. At harvest, the result was as follows, viz.:—Those deposited at one inch deep were almost turned out of the ground, had tillered very little, and the ears were few, and the grain lean. Ditto deposited at 2 inches, tillered largely, and stood upright on the ground, were well filled, and excellent grain. Ditto deposited at 3 inches deep, tillered more largely, and had stronger straw and larger ears, ripened well and seasonably. Ditto deposited at 4 inches, nearly the same. Ditto deposited at 5 inches, did not tiller so much as those deposited at 4 inches, neither did they produce such strong stalks, nor so much grain. Ditto deposited at 6 inches deep, tillered less, and did not ripen so well as the above. Ditto deposited at 7, produced only one stalk; it shrivelled to nothing before midsummer. Ditto deposited at 8 inches deep, never came above ground. The result of this experiment, and a variety of others, made at different times on different seeds, and in different soils, the particulars of which I shall not here trouble you with, give me reason to conclude, that from 2 inches deep to 5 is the

greatest latitude which this operation admits of. The lightest soils and driest seasons require the greatest depths to be used; and wheat, of all the grains, admits of being deposited deepest. When the soil has been lately broke up, and rich, or is a very fine sandy loam, &c., full of manure, (and withal a dry seed time,) I have found 4 inches the best depth; but, in general, 3 inches, in my experiments, has answered best.—*Clarke's Theory of Husbandry*, 1781.

Westphalia Hams.—The following compound will give to any common ham the taste so much appreciated in that sold as Westphalia; and is recommended to them who prefer that flavor. In one hundred parts of water dissolve four parts of salt, two parts of brown sugar, one part Barbadoes tar, and one part spirits of wine. After it has been well mixed and stood for several days, three table-spoonfuls may be mixed with the salt necessary to cure an ordinary ham.—*English paper.*

[Talk as we may of Westphalia hams, but give us the *pea-fed* ham, such as are reared and fattened on Georgia or cow-peas in North Carolina. We have always stickled for *corn-fed* pork, but that was, with the mind's eye, on the still-fed hog of the west, and the slop-fed or dairy and pumpkin-fed hog of the Eastern States.

We were lately honored with a present of a barrel of hams, esteemed the higher as they came from a gentleman to whom we are personally a stranger—we expect to have a particular account of the breed of the hogs, the fattening and curing process, &c. In the mean time, we must not delay to say, that the jury (and a *Maryland* jury at that) pronounced the only one yet put on trial, fully equal to the best ham they had ever seen or tasted. The hog had been almost entirely fattened on peas. Let the reader conceive every requisite of excellence, and the unanimous verdict of the jury was, they were all combined in this ham.

To sum up all in a few words, it was equal to a Montgomery county Maryland ham, from among the Waters, the Stablers, and the Brooks, and other *Friends!*—Ed.]

Can't be Beat.—Our quondam friend, Dr. *Bayne*, will not be outdone in raising fruit. On Wednesday he sent us a quantity of his unequalled Strawberries. Some of them measured upwards of 4¼ inches, and the doctor writes us that he gathered on Monday morning 330 quarts, and could have pulled 100 more. The berry has not, he says, been so large with him this season as usual, owing to protracted ill-health preventing him giving his personal attention to his horticultural operations. We are glad to learn that his health is much improved. The lot of Cherries sent by him excelled any we have ever seen.—*Marlbro' Gazette.*

[What does friend Wilson mean by his *quondam* friend *Dr. Bayne?* We hope the doctor is still living, and that his friendship survives for Mr. W., as was in fact most agreeably demonstrated by the present above mentioned. The doctor's merit is not so much in the excellence of his horticultural productions, remarkable as that is, but in the *value of his example*, in a region where it stands out in bold relief, by the *force of contrast.*

When such men as Dr. Bayne come to be respected and honored in *just proportion* to the beneficent tendency of their tastes and their labors, we may begin to hope that agricultural societies will desire to make their shows attractive, rather by an advertisement and an exhibition of red *beets*, or red *cows*, than—*red collars!*—Ed.]

Harvesting Carts: saving of Animal Labor.—Considerable discussion has, to this end, recently taken place, as to the superior economy of employing, on many farms, one-horse carts in preference to wagons. Mr. E. Loomes finds that a one-horse cart is capable of carrying much more than one-half of what can be carried on a two-horse wagon; or (*Jour. R. A. S.*, vol. vi., p. 398)—

One-horse cart.	Two-horse wagon.
Wheat sheaves 172	Wheat sheaves 207
Corn, cake, &c. 25 cwt.	Corn, cake, &c. 45 cwt.
Bones - - - 60 bush.	Bones - - - 100 bush.

In *dung carting*, *one*-horse carts appear to have a decided advantage. Mr. Love has given a table of the economy of both *one* and *two*-horse carts (*Jour. R. A. S.*, vol. 7, p. 225.) In this, each boy driving is counted as the fourth of a man tipping. A man is reckoned at 2*s.*, and each horse 3*s.*, per day of nine hours.

	One-horse carts.	Two-horse carts.	One-horse carts.	Two-horse carts.
Distance in furlongs - -	3	3	3	3
Time of travelling a revolution - - - - - -	15	15	15	15
Number of horses - - -	3	3	5	5
Number of carts - - -	3	2	5	3
Men filling the carts - -	2	2	4	4
Time of filling - - - -	10	15	5	7½
Men tipping and driving	1½	1	1½	1½
Time of tipping - - - -	5	7½	5	7½
Total time to each revolution - - - - - - -	30	37½	25	30
Number of loads drawn	54	29	108	54
Number of yards drawn	54	43½	108	81
	s. d.	*s. d.*	*s. d.*	*s. d.*
Expense of horses - -	9 0	9 0	15 0	15 0
Expense of men - - -	6 6	6 0	11 6	10 6
Total day's expenses - -	15 6	15 0	26 6	25 0
Expense of carting 30 yards - - - - - -	8 7	10 2½	7 4½	9 5
Saving by one-horse carts, per acre - - - - -	1 7½	—	2 0½	—

Indian Corn, &c.—The following table gives the amount of nutritive matters contained in 100 lbs. of various cultivated crops (J. F. Johnston's Elements of Chem., p. 227):—

	Starch, Gum, and Sugar.	Gluten, Albumen, & Casein.	Oil.
Indian corn	70	12	5 to 9
Oats	65	18	5 to 8
Barley	60	12	2½
Rye	60	14½	
Wheat-flour	55	15	2 to 4
Peas	50	24	2½ to 3
Beans	40	28	2½ to 3
Potatoes	12	2¾	¼
Turnips	10	1½	¼

Cutting the Flowers off Spring Bulbs.—Can you decide this point between my gardener and myself? There is a notion that cutting the flowers off spring bulbs, such as Hyacinths, Narcissus, Crown Imperials, Scillas, &c., prevents their forming good bloom in the year following, but tends to the formation of offsets; what is your opinion? or what is the experience of your correspondents on this matter? I think in Holland there is a prejudice against cutting the flowers of bulbs.—*Dodman.* [It will in all probability have the effect of causing an excessive production of offsets.]

A Cotton Factory in the South.—The Pensacola Gazette describes the Arcadia Cotton Factory, which is now in successful operation. It is worked entirely by slave labor, runs twenty-four looms, and turns out 1000 yards of cotton a day.

[Now is it not obvious that in this case the social proximity of the plough and the loom is mutually advantageous. May not the planter, the manufacturer, and the consumer of the produce of both, divide among them the expenses for freight, commissions, transportation, &c., by land and water, that would be incidental to sending this same cotton to Manchester to be spun and wove by men and women, who never, except in case of extreme scarcity or famine, would consume the products of the American plough, or orchard, or dairy, or garden?

The ink is hardly dry with which we expressed our surprise that the obvious fitness of Montgomery, Alabama, for the establishment of cotton manufactories was not availed of—and here we see that the suggestion has been anticipated.—Ed.]

We learn from the Montgomery Journal that Messrs. J. S. Winter & Co. have nearly ready at that place an extensive establishment for manufacturing purposes. It is their intention to combine several important branches of manufactures, including woollen and mixed goods—something which is entirely new in Alabama.

Horticultural Exhibition.—There was a fine display of the productions of the greenhouse and conservatory at Horticultural Hall, Boston, on Saturday morning. Pot plants of fine growth and rare kinds were exhibited by Messrs. Wilder, Hovey & Co., Bowditch, Col. Perkins, by Mr. Quant, O. H. Mathers, Warren, Nugent, Miss Russell, Miss Kenrick, Barns, and others; and cut flowers of open culture by Messrs. Breck & Co., Richards, Copeland, &c. The pot plants were Pelargoniums, Ericas, Cactus, Fuchsias, Stocks, Lilies, Azeleas, Cinerarias, Roses, &c., and many well-grown specimens were on exhibition. The hall was rendered odorous with the fragrance of the flowers.

[There is not in the Union a town nor a village, where such exhibitions might not be made, without detracting one iota from the profitable industry of the inhabitants; nor one where such exhibitions could fail to improve the character and even the value of the property of the citizens. How easy would it be for half a dozen ladies and gentlemen in all our country villages, to put this ball in motion! Why do not the resident clergy encourage, as they might, the cultivation of flowers and the establishment of horticultural societies, and a taste for natural history generally among their flocks. A taste for such studies and pursuits would greatly aid them in banishing gaming tables and the use of the bottle!—Ed.]

Bones for Grape Vines.—Much has been said respecting the advantage and disadvantages of mixing bones (unbroken) with the soil in which Vines are planted; the following has been my experience. Two years ago I planted my Vines and Orange trees upon a quantity of bones (the bones of horses and cows.) The border in which they were planted was thoroughly well made, the soil excellent, with good drainage. The plants never flourished, and at length they appeared in a dying state. I have just taken some of them up; I found every part of the roots which had come in contact with the bones completely decayed, and the roots were covered with an offensive white powder, which was also attached to the bones. I have no doubt that if the plants had remained much longer in the vicinity of these bones, they would have died.—*A Subscriber, April* 27.

Nitrate of Soda.—A steady demand is kept up in England for this article, and full prices paid for the use of it *as manure.* By the last accounts, the market was firm at 14*s.* 3*d.* to 14*s.* 6*d.* per hundred pounds. For *Guano,* the demand kept pace with the supply, and this after very extensive use and ample experience of its cost and results. In prices there is not much variation; Peruvian, 9*l.* to 9*l.* 10*s.*; Patagonian, 5*l.* to 7*l.*; Saldanaha Bay, 5*l.*; Egyptian, 8*l.*; Ichaboe, 8*l.* per ton.

READINGS FOR MOTHERS AND CHILDREN.

If there be, according to our observation, any one thing more than another lamentable in rural domestic habits and management in our country, it is the too general failure on the part of the father and master of the household to provide an adequate stock of fresh and suitable reading for the different members of his family, such as blends amusement with more or less instruction.

If it were not so notorious, and so almost universal, one might be tempted to ask, whether it be possible that thousands of gentlemen in the country make no regular provision for a systematic and constant supply of refreshing and healthful food for the mental, as well as the physical, wants of their wives and children—as if one were not as indispensable and as obligatory as the other? The Bible, the almanac, some old stereotyped school-books, and a few old musty volumes, that chance may have saved from the "wreck of ages," in too many cases, constitute the entire library of a man, with an hundred or more acres of land, out of debt, and independent and well to do in the world—his own reading consisting too frequently and chiefly in an *eager perusal* of his party *newspaper*, that he may the better judge of the chances for and against those for whom he has been told he must vote. Oh that farmers and planters, of all parties, would learn to think for themselves, and measure out their support of men by their success in honest, useful pursuits, and by their capacity and determination to understand and support the *landed interest of the country;* for, when *that* is best provided for in the policy of the government, all other interests are cared for; so true is it, that all, when well understood, will be found hanging together like a bunch of crabs that cannot be rudely separated, without maiming and injury to some material part of the concern. But the point on which we meant to teach and argue in favor of thorough reform, is the failure to keep up for the mother and the children the means of a constant accession of knowledge, useful and appropriate, by means of entertaining and instructive reading.

As far as that may be done in a portion of one periodical, dedicated mainly to the staple interests and pursuits of the master over all, we shall endeavor to accomplish it in "THE PLOUGH, THE LOOM, AND THE ANVIL," under the heading we have chosen for this portion of each number, to wit:—"READINGS FOR MOTHERS AND CHILDREN;" and here we may repeat, that, in our humble judgment, those who have undertaken to address themselves to housewives and mothers, have been too much disposed to regard them rather in the light of upper servants, who only need to be taught in the round of the coarser household and culinary offices, than as our intellectual partners, placed in positions of the highest moral responsibility; for is it not on them that devolves chiefly the task of amusing as well as instructing all the younger members of the family, at the very time of life that they are most curious to learn, and most susceptible of moral impressions? And is it not the height of injustice—nay, is it not cruel to expect the mother to discharge this high and exalted trust, and yet withhold from her all the means of its performance? To what nobler distinction can a mother aspire, than to have the eloquent and discerning biographer, when a son rises to eminence among men, attribute his renown, in good measure, to *maternal influence!* What better omen for the son than respectful attention to the teachings of the mother! but how can she teach, to whom the means of teaching, and, perhaps, the blessing of a good education for herself, has been denied? "The child of seven years," (says Professor Everett, in his admirable "Eulogy on the Life and Character of John Quincy Adams,") "who reads a serious book with fondness, *from his desire to oblige his mother*, has entered the high road of usefulness and honor."

Little did the mother of the departed sage of Quincy, probably, dream at the time of the posthumous honor she was earning, to have it written of her, and delivered before the whole body of the representatives of Massachusetts, in funeral and solemn assembly convened, and that by one of the first and most distinguished scholars of the age:—

"And here I may be permitted to pause for a moment, to pay a well-deserved tribute of respect to the memory of the excellent mother, to whose instructions so much of the subsequent eminence of the son is due. No brighter example exists of auspicious maternal influence, in forming the character of a great and good man. Her letters to him, some of which have been preserved and given to the world, might almost be called a manual of a wise mother's advice.

The following passage from one of her published letters, written when her son was seven years old, will show how the minds of children were formed in the revolutionary period. 'I have taken,' she says, 'a very great fondness for reading Rollin's Ancient History since you left me. I am determined to go through with it, if possible, in these days of my solitude. I find great pleasure and entertainment from it, and have persuaded Johnny to read a page or two every day, and hope he will, *from his desire to oblige me*, entertain a fondness for it.' In that one phrase lies all the philosophy of education. The child of seven years old, who reads a serious book with fondness, from his desire to oblige his mother, has entered the high road of usefulness and honor."

* * * * * *

"The counsels of the faithful and affectionate mother followed him beyond the sea. In one of the admirable letters to which I have referred, written during the visit to France, she says:—'Let me enjoin it upon you to attend constantly and steadfastly to the instructions of your father, as you value the happiness of your mother, and your own welfare. His care and attention to you render many things unnecessary for me to write, which I might otherwise do. But the inadvertency and heedlessness of youth require line upon line and precept upon precept, and, when enforced by the joint efforts of both parents, will, I hope, have a due influence upon your conduct; for, dear as you are to me, I would much rather you should have found your grave in the ocean you have crossed, or that an untimely death should crop you in your infant years, than see you an immoral, profligate, or graceless child.'"

In supplying this department of our journal, far from confining ourselves to recipes for killing vermin, and compounding soap and sausages, we shall better indicate our views of the studies and the duties that become the mother and the children of every household, by the latitude of choice we shall exercise in the selection of topics for their department of our journal. These will embrace moral essays, the more useful and refined branches of horticulture, with sketches of natural history, biography, &c. We hold it to be impossible for any one to read a work on natural history, such as the Rev. Gilbert White's Natural History of Selborne, Gleanings by Edward Jesse, &c., without reflecting how many *facts* come within the personal observation of every boy who leads an active life in the country, that if *noted down* would serve to throw light on the natural history and habits of animals, birds, &c. It cannot fail to strike the mind of every elderly reader—what an accumulation of such facts he might have stored up in his own days of giddy and thoughtless youth, if he could have imagined to what account such things might be turned in the hands of amiable and accomplished naturalists, such as those to whom we have referred. Let then, all parents who perceive the justness of what we have said, place, as they may at very trifling cost, in the way of their children, books that will entertain and inspire them with a habit of extracting something interesting from every thing that lies on the way-side to their snares and traps, to their fishing grounds, or on that saddest of all roads, the one that *leads to the country school-house.*

Another inducement to the prosecution of this study, (natural history,) says the amiable and pious Jesse, "is the added pleasure which it gives to every hour we pass in the country, to every walk, and to every ride, whether alone or in society. An incurious person has, as it were, his eyes closed to the animal world around him, while an attentive observer, and a lover of nature, has his time and his thoughts delightfully occupied in the contemplation of every insect which crosses his path, and of every bird which he sees near him. He endeavors to find in them something heretofore unnoticed, he admires the beautiful symmetry and elegance of their appearance, and he studies their different manners and modes of living.

"It is a study not only delightful in itself, but tending to promote good and kind feelings, and to raise our affections to that Being by whose infinite power and wisdom all things were made. Indeed, the more minutely we search into the history, habits, and economy of birds, animals, and insects, the more reason shall we have to admire the ineffable wisdom of the Creator, in the order and harmony, the utility and beauty, which are apparent throughout the entire range of animal life."

How deeply then is it to be lamented that to the millions of young people growing up in the country, so many sources of intellectual enjoyment, such inexhaustible stores of knowledge, and of pleasure, should be closed for want of that key to unlock them, which would be placed in their hands, by *education even a little improved!*

But let us forbear vain regrets, and essay something towards that reform, to which the humblest mind animated by an earnest will may contribute something; begging the reader to be persuaded how true it is that

> **"Who studies nature's laws,**
> **Sincerest pleasure from the country draws;**
> **And while the arts his friendly aid receive,**
> **For him, and him alone, does nature live."**

STUDY OF NATURE.

"There are still in thee,
Instructive Book of Nature! many leaves
Which yet no mortal has perused."

To note the habits, instincts, and peculiarities of the animal creation has long been a favourite pursuit with me. It is a study, not only delightful in itself, but tending to promote good and kind feelings, and to raise our affections to that Being by whose infinite power and wisdom all things were made. Indeed, the more minutely we search into the history, habits, and economy of birds, animals, and insects, the more reason shall we have to admire the ineffable wisdom of the Creator, in the order and harmony, the utility and beauty, which are apparent throughout the entire range of animal life. We are led to see that from the most stupendous to the most minute things in nature, all are appointed for some good end and purpose, and that "Deity is as conspicuous in the structure of a fly's wing, as in the bright globe of the sun itself." The following passage from Derham's Physico-Theology is both delightful and instructive. Speaking of the formation of insects, he says, "It is an amazing thing to reflect upon the surprising minuteness, art, and curiosity, of the joints, muscles, tendons, and nerves necessary to perform all the motions of the legs, the wings, and every other part: and all these things concur in minute animals, even in the smallest mite and animalcule; and having named these animals, why should I mention only one part of their bodies, when we have in that little compass a whole and complete body, as exquisitely formed, and (as far as our scrutiny can possibly reach) as neatly adorned, as the largest animals? Let us consider that there we have eyes, a brain, a mouth, a stomach, entrails, and every other part of an animal body, as well as legs and feet, and that all those parts have each of them their necessary apparatus of nerves, of various muscles, and of every other part that other insects have, and that all is covered and guarded with a well-made tegument, beset with bristles and adorned with neat imbrications, and many other fineries."

It appears impossible that any attentive observer of this exquisite workmanship should not be compelled to acknowledge that it is produced by, and is worthy of, a great, all-powerful, and benevolent Creator, who had some good and wise purpose in every thing he did: and, surely, when this conviction is once firmly impressed upon the mind, it will find infinite pleasure and gratification in searching out the works of Nature; and the further these inquiries are carried, the more shall we be led to acknowlege that "*the hand which made them is divine.*"

Another inducement to the prosecution of this study, is the added pleasure which it gives to every hour we pass in the country, to every walk and to every ride, whether alone or in society. An incurious person has, as it were, his eyes closed to the animal world around him; while an attentive observer, and a lover of Nature, has his time and his thoughts delightfully occupied in the contemplation of every insect which crosses his path, and of every bird which he sees near him. He endeavors to find in them something heretofore unnoticed, he admires the beautiful symmetry and elegance of their appearance, and he studies their different manners and mode of living. It is the object of the following pages, to give the youthful mind an early bias to contemplations and inquiries such as these; which, I am convinced, will be found conducive not only to health and cheerfulness of spirits, but also to the purifying and the elevating of the *mind.*

ORDER OF PROVIDENCE.

ANIMALS which prowl, or move about much in the dark, are furnished with projecting hairs or whiskers from the upper lips, which guide them in their passage through holes or narrow openings in hedges. These hairs serve as *feelers*, and are of such a length, that the body of the animal will pass through an opening which these projecting hairs just touch on either side. They are very sensitive, and if they are ever so slightly touched while the animal sleeps, it is instantly aware of it. Hares very often make their runs or mews between two strong upright sticks in a hedge which will just allow them to pass through, without being sufficiently large to admit the passage of a dog, should it be in pursuit. This is a very extraordinary instinct, and shows a great foresight of danger. In passing through such a passage at night, these *feelers* must be of great service to the animal, who without them would probably run against objects which might injure it. Horses have these strong hairs both on the upper and lower

lips, but with them they are designed for another use; probably that of keeping flies and insects from annoying them by getting into their nostrils while they are grazing. They are sufficiently close together for that purpose; and, moving as they do while the horse is feeding, serve to brush away any thing offensive. Some animals are not furnished in this manner, but then they have some other means of protection from a similar annoyance. The elephant, for instance, has a sort of valve placed at the extremity of his proboscis, which he carefully closes when he is not using it, to prevent any thing getting up his trunk which might injure him. His eyes are small: but, if they were in proportion to his size, he could not, with his peculiar formation, protect them so readily from injury in countries where insects are very formidable. He is, however, furnished with large pendent ears, which serve him as *flappers* to protect his head from flies. Indeed, there are few, if any, animals, which are not provided with sufficient means to guard themselves from injuries from those creatures who may annoy but do not prey upon them. They have also some instinctive or actual properties, which enable them in some degree to secure themselves against the attacks of stronger animals, who in their turn, in order to obtain their food, are obliged to use great watchfulness as well as strength. We see this in every gradation in the animal world, and it is a striking instance of that order in nature which serves to keep up a due proportion of each created thing, without suffering any one species to be exterminated. This would be the case if too much facility were afforded to predatory animals of securing the weaker ones whenever they pleased. A lion or a tiger has to wait long in ambush, and to exert much patience and watchfulness, before it can find an opportunity of springing upon its prey. This is the case with the cat, fox, and some other animals, and occurs also amongst amphibia and even insects. What is wanting in swiftness is made up in cunning; so that, in some cases, even a semblance of death is put on for the purpose of securing food more readily.

I have entered into these remarks, because I have always considered the subject worthy of attention. How much would our actual enjoyment and comforts in this world be diminished if any one of the various species of quadrupeds, birds, or insects, which we see about us, were suffered to increase in too great a proportion! We can hardly form a calculation of the greatness of the evil either to ourselves or to other created beings. At present, however, every thing is most beautifully ordered and arranged, and no one species predominates disadvantageously over another. Those which are most useful to man multiply in a much greater proportion than others which are noxious. But even the latter have their appointed use, and in the hands of a superintending Deity are made instruments of good. To a contemplative mind it is often a fearful consideration to reflect on the various modes of existence, and the different bodies wherein it has pleased God to cause life to dwell: many of which are subjected to great sufferings, and especially from one part of the creation preying upon another. What, however, many have brought forward as an argument of the want of mercy and justice in the Almighty is, on the contrary, a proof of his goodness and benevolence.

The means which Nature takes to secure every race from becoming extinct is to produce them in superabundance. The only way, therefore, of preventing them from overrunning the earth is to produce enemies who shall prey upon and keep them within due limits. These different races, unless they were killed by their enemies, would increase beyond the supply of their food, so that the ordinary course of death amongst them would be the most painful one that can be imagined, namely, starvation. The real effect, therefore, of what may appear a disorder and cruelty in Nature, is, in point of fact, mercy; as the individuals are taken off by a sudden death in the height of their vigor, instead of being subject to a lingering and protracted one, which a want of food must have occasioned.

"How admirable are the works of God! how excellent the operations of his hands!

"I consider plants and animals; four-footed beasts, and creeping things;

"In all was manifested infinite wisdom, and an excellent workmanship that I could not comprehend.

"Yet so much was made known unto me, as declared the power and goodness of God; and the continued agency of the Great Creator, and Lord of all things.

"Wherefore have we eyes to see? and hearts that we may know and understand?

"O Lord, make me to contemplate thy glorious works: and that which I know not, teach thou me!"

It has been justly remarked that there is nothing done by men worthy of commendation, but God has imprinted some imitation of it even in brutes and insects. We see this in various instances. Beavers are not only an example of great industry, but the manner in which they perform their operations in making their dams or embankments according to existing circumstances, in a way which one would almost have thought mere

instinct could not have taught them, proves them to be possessed of a faculty which might be considered as only belonging to man. If we want instances of fidelity, attachment, and sagacity, we have them in the dog; and all that we know of the elephant proves him to be capable of imitating some of the best faculties which are found in rational beings. His trunk serves him instead of a hand, and with that member, added to the great share of sense and docility with which he is endowed, he is capable of performing various actions, which man, in a state of ignorance and barbarism, would not have attempted. If we want to see beautiful architecture, we should watch the operations of the bee and other insects; and the weaver might take a lesson from the web of a spider. The persevering industry of the ant has been held up to us for imitation, not only by Solomon, but by the ancient poets.

"Magni formica laboris,
Ore trahit quodcunque potest, atque addit acervo
Quem struit, haud ignara ac non incauta futuri."
HORACE.

"As the small ant, for she instructs the man,
And preaches labor, gathers all she can,
And brings it to increase her heap at home,
Against the winter, which she knows will come."
CREECH.

Pope has beautifully expressed these thoughts in his Essay on Man:—

"Thus, then, to man the voice of Nature spake—
Go, from the creatures thy instruction take;
Learn from the birds what food the thickets yield;
Learn from the beasts the physic of the field;
Thy arts of building from the bee receive;
Learn of the mole to plough, the worm to weave;
Learn of the little nautilus to sail,
Spread the thin oar, and catch the driving gale."

LANGUAGE OF INSECTS.

My bees are a constant source of amusement to me; and the more I study them, the more I am led to admire their wonderful instinct and sagacity. Few things, however, surprise me more than the power which they possess of communicating what I can only call "intelligence" to each other. This I observe to be almost invariably the case before they swarm. Some scouts may then be observed to leave the hive, and for a time to hover round a particular bush or branch of a tree, after which they return to the hive. In a little while the new swarm quits it, and settles on the branch which had been previously fixed upon by the explorers. The same power of communication may be observed in the ant. I have often put a small green caterpillar near an ant's nest: it is immediately seized by one of the ants, which, after several ineffectual efforts to drag it to its nest, will quit it, go up to another ant, and they will appear to hold a conversation together by means of their antennæ; after which they will return together to the caterpillar, and, by their united efforts, drag it where they wish to deposit it.

I have also frequently observed two ants meeting on the path across a gravel-walk, one going from, and the other returning to the nest. They will stop, touch each other's antennæ, and appear to hold a conversation; and I could almost fancy that one was communicating to the other the best place for foraging: this Dr. Franklin thought they have the power of doing, from the following circumstance. Upon discovering a number of ants regaling themselves with some treacle in one of his cupboards, he put them to the rout, and then suspended the pot of treacle by a string from the ceiling. He imagined that he had put the whole army to flight, but was surprised to see a single ant quit the pot, climb up the string, cross the ceiling, and regain its nest. In less than half an hour several of its companions sallied forth, traversed the ceiling, and reached the depository, which they constantly revisited until the whole of its contents was consumed.

Huber says, "that Nature has given to ants a language of communication by the contact of their antennæ; and that, with these organs, they are enabled to render mutual assistance in their labors and in their dangers; discover again their route when they have lost it, and make each other acquainted with their necessities. We see, then," he adds, "that insects which live in society are in possession of a language; and in consequence of enjoying a language in common with us, although of an inferior degree, have they not greater importance in our eyes, and do they not embellish the very spectacle of the universe?"

What I have said respecting the power of communicating intelligence to each other, possessed by bees and ants, applies also to wasps. If a single wasp discovers a deposit of honey or other food, he will return to his nest and impart the good news to his companions, who will sally forth in great numbers to partake of the fare which has been discovered for them. It is, therefore, I think, sufficiently clear that these insects have what Huber calls an "antennal language,"—a language, we can have no doubt, that is perfectly suited to them,—adding, we know not how much, to their happiness and

enjoyments, and furnishing another proof that there is a God,—almighty, all-wise, and all-good,—who has "ornamented the universe" with so many objects of delightful contemplation, that we may see him in all his works, and learn, not only to fear him for his power, but to love him for the care which he takes of us, and all his created beings.

LOVE OF FLOWERS.

WHY should we dwell on this elegant resource, for the cultivation of which the rural residence would seem to offer peculiar if not exclusive facilities, were it not to deplore the fact, as we have often done, that in our country the pursuit of the "almighty dollar," and the habitual restlessness and anticipation of change that seem to characterize our people, would appear to forbid encouragement of tastes that every one admits to be at once the signs and the promoters of civilization.

If anywhere more than another in the United States, the population is more stable and more cultivated, it is in Boston—

> "Where mortals dare
> To vanquish nature, and correct the air."

And there it is that we see the cultivation of fruits and flowers carried to the highest perfection. For this high honor, the community is indebted to a more diffusive and a higher grade of education; and, availing of that, to the enlightened exertions and beneficent influence of the Horticultural Society of Massachusetts, animated and directed by such men as Dearborn and Marshall. Strange, and lamentable as strange, however, it must be admitted, that in many parts of our country, there exists in the *towns* more of this evidence of refinement which flowers afford, *than in the country*. In many of our cities may be seen a greater variety of shrubbery and flowers, on little spaces of a few square feet, than is to be found on thousands of farms of several hundred acres, and that too where there are—what we would hardly infer—ladies in the farm houses! How much to be deplored, that daughters should be reared without any cultivation of a taste at once so natural and so chaste—that they should be brought up with a feeling of insensibility to the very "smiles of God," as flowers have been aptly called.

Among other of the nameless charms which are said to characterize and render so bewitching the women, even the grisettes of Paris, this love of flowers is an universal passion—almost a *monomania*—if there be no exaggeration in the following, from the pen of an "AMERICAN IN PARIS," from whose work it was kindly transcribed at our request by a fair young lady, and what is still better, *as good as she is fair*.

"Quite contrary to the great Parisian lady, who only loves flowers when she has nothing else left to love, the Parisian grisette loves flowers before she begins to love any thing else. The latter commences, as the former finishes. There is not, in all Paris, in the melancholy heights, in the sloping garrets—where the house-sparrow hardly dares take his flight lest he should be giddy—a single girl, poor and alone, who does not come, at least once a week, to this flower market, to enjoy the spring and the sky. The poor girl in Paris, who gains her living by the hardest labor, from whom an hour lost takes a portion of her day's bread, has not time to go very far in search of verdure and the sun. And as neither verdure, nor the sun, nor the brilliancy of flowers, nor the song of birds, comes to seek her in the frightful corners where she conceals her sixteen years, it is she herself who goes in search of them. Nothing is more delightful to see than this poor, half-clad child, coming to buy a whole flower-garden in one single pot. She stops a long time, fearful, undecided, and curious; she would fain see, and smell, and take away all. She admires their forms, their colors, their indescribable perfume; she is delighted! However, she must at last conclude, by making this long-coveted purchase. The poor girl advances with a timid step. 'Madam,' says she, 'how much are your flowers?' Your flowers! It is generally a pot of mignonette, which gives but little hope of thriving. At these words the flower-woman smiles good-humoredly. Of all the honest people who gain their living by buying and selling, the flower-woman has, without contradiction, the most upright conscience, and the most sincere good faith. She sells at a high price to the rich, but a very low one to the poor. She thinks she ought to encourage so good a passion, and that it is much better for this young girl to buy a flower to ornament her wretched little room, than a ribbon to adorn herself. Thus she sells her pot of mignonette or sweet peas almost for nothing. And then the young grisette goes away more happy, and more triumphant, than if she had, in the presence of a notary, purchased a whole domain. See her light step, as she carries off an estate in her arms, singing as she

goes! And for a week she experiences the greatest delight. She waters the sweet plant, morning and evening; she sings to it her choicest songs; she seeks for it some nice little corner upon the roof, by the side of the chimney, which protects it from the north wind. At the first ray of sun which penetrates those melancholy walls, the flower is exposed to the pale and trembling light; at the first whistle of the north wind, the flower is carefully shut up in the room, and then the amiable girl does for her flower what she has never done for herself—she prevents the air from intruding through the ill-joined door, the half-open window, or the chimney, which has neither fire nor flame. Vain, but delightful efforts! At first, the humble plant, grateful for so much care, throws out here and there a few scrubby leaves, which cheer the heart of the happy proprietor of this estate of half a foot; after the leaf, the flower sometimes appears—not the flower itself, but the hope of one. Then the grisette claps her hands: 'Come,' she says to her neighbors, 'come and see how my periwinkle is flowering!' But at these first announcements of spring, all this hope of fertility usually stops; night and cold are more powerful than the zeal of the young girl; after a month of struggling and suffering, the flower fades, languishes, and dies; it is only the shadow of a shadow. She weeps over it; she thinks, this time, she really will give up such vain delights. But how can hope be stifled in young hearts? When she has had a long fit of weeping, she again makes another attempt, fruitless as the former, until at last, this honest passion is replaced by one far less honest."

The following piece we extract, as appropriate to the subject in hand, from a volume entitled "TAM'S FORTNIGHT RAMBLE," published by Carey & Hart, Philadelphia:

OUR LITTLE GARDEN.

WITHIN the crowded city,
Where life has scarcely room,
I have a little garden
Where simple flowers bloom.

There grows the morning-glory,
With many a varied hue;
Its flowers are pink and purple
And virgin-white and blue.

The four-o'clock each evening
Unfolds its scented cup;
And from a nook the violets
With diffidence peep up.

The marigold and rose-bush
Have each a fitting place;
And there the yellow jasmine
Expands with modest grace.

The blue-bell and geranium,
The beauteous balsamine,
The pink, the lady's-slipper,
The tender cypress vine.

The brilliant-hued nasturtion
Is climbing up the wall;
And there the tall sun-flower
Looks proudly on them all.

I have some rarer flowers;
Of these I will not tell,
Though I find many reasons
To love them all full well.

The humbler plants are dearer
And give me deeper joy;
They tell me of my mother,—
And when I was a boy.

She loved such simple flowers,
And tended them with care;
These many years in Heaven,
She tends the flowers there.

And we now teach our children
To love such flowers too,—
To pattern by her virtues,—
As she once did, to do.

So, when they have no mother,
And when their father's fled,
They'll have some sure memorials,
To tell them of the dead;

Some humble, blooming flower
(Which God renews each year)
To bid them in their duty
With faith to persevere.

When they to cares of manhood
And womanhood attain,
The lessons flowers teach them
They'll find are not in vain.

AN HOUR AT THE OLD PLAYGROUND.

IT will not be often that we shall take space for poetical effusions, but the following will strike a chord in the bosoms of so many, who have been educated in the country, that we cannot refuse it a place. We should like to know how many eyes it will meet of those, who, more than forty years ago, were at school in Calvert county—or at Charlotte Hall—or at Queen Anne in Maryland?

Some years since we met with one of these old school-fellows on the banks of the Mississippi, after a lapse of twenty years, who, to his dying day, called us nothing but "John." Overcome with joy and surprise,

he gave vent to his feelings in alternate laughing and crying hysterically, until after midnight. How many, many luckless rabbits had we, together, on Saturdays and holidays, tracked to their last forms in the snow? How many gay squirrels had we brought down from the topmost boughs of the maple and the hickory?

I sat an hour, to-day, John,
Beside the old brook stream,
Where we were school boys in old times,
When manhood was a dream;
The brook is choked with falling leaves,
The pond is dried away;
I scarce believe that you would know
The dear old place, to-day.

The school-house is no more, John,
Beneath our locust trees,
The wild rose by the window side
No more waves in the breeze;
The scatter'd stones look desolate,
The sod they rested on
Has been plough'd up by stranger hands,
Since you and I were gone.

The chestnut tree is dead, John,
And, what is sadder, now,
The broken grape-vine of our swing
Hangs on the wither'd bough;
I read our names upon the bark,
And found the pebbles rare
Laid up beneath the hollow side,
As we had piled them there.

Beneath the grass-grown bank, John,
I look'd for our old spring,
That bubbled down the alder path,
Three paces from the spring;
The rushes grow upon the brink,
The pool is black and bare,
And not a foot, this many a day,
It seems, has trodden there.

I took the old blind road, John,
That wander'd up the hill—
'Tis darker than it used to be,
And seems so lone and still;
The birds sing yet upon the boughs,
Where once the sweet grapes hung,
But not a voice of human kind,
Where all our voices rung.

I sat me on the fence, John,
That lies as in old times,
The same half-panel in the path,
We used so oft to climb;
And thought how o'er the bars of life
Our playmates had pass'd on,
And left me counting on the spot
The faces that are gone.

A Table to Calculate Wages.—Put down, first of all, the nominal wages received by your servant, which by calculation you will find to be the exact half of twice as much. Then subtract the fresh butter from the pantry, and the product will show you how often the best Dorset will go into the tub of kitchen-stuff. Then work out the sum: as the parlor Stilton is to the Dutch cheese, so is the cold meat to the young man who stands outside the area of an evening. Divide the contents of the tea-caddy into what you use yourself, and what is used for you, and the quotient will be as one to six. Write these several results upon a slate, and by adding them up carefully you will be enabled to calculate how much your servant costs you.—*Punch.*

Phillips, in his entertaining "History of Fruits," says, that England had procured from America, 2345 varieties of trees and plants. There *is* one good fruit, that we might have derived from our conquests in Mexico—the transplantation of some of their vegetables, trees, and animals, if they had been pushed in the spirit of Roman conquests. We have heard however of but one—and that by a gallant officer of enlarged and liberal views. *Com. Stockton*, as we should have predicted, has taken measures to have brought the noble race of Californian Horses on which Fremont and Gillespie performed such wonderful journeys.

Knitting Stockings by Steam.—A number of influential inhabitants of Ipswich have introduced into that town an important branch of industry, likely to give employment to a large number of persons. In Carr-street, machines are now at work in knitting stockings by steam. The work is done with beautiful accuracy. One young person can attend to three machines, and each machine will knit one stocking in three hours.

French Sewing Machine.—Late French exchanges say that Jean le Capelin, petit, or little John Capelin, has invented a sewing machine that makes 240 stitches per minute, which by the turn of a screw are changed from fine to coarse in a moment. It will sew, stitch, and make edgings by the same movement.

Benefit of Towns to the Country.—The nearer the cultivator is to a city, the more his operation runs into *horticulture* and the more profitable it becomes. It is computed that more people find employment and subsistence within ten miles around Philadelphia, as cultivators of the soil, than exist in the nine counties of the eastern shore of Maryland.

RECEIPTS.

French Cement.—This cement is designed as a paint for the roofs of houses. It answers all the purposes of common paint, and also protects the roof from fire. Those who are erecting new houses, or are about to paint the roof of old buildings, would do well to try it. The expense of painting a roof in this way, would be much less than in the common method. The cement becomes very hard and glossy, and is said to be more durable than the best kind of paint.

Take as much lime as is usual in making a pail full of whitewash, and let it be mixed in the pail nearly full of water; in this put two and a half pounds of brown sugar, and three pounds of fine salt; mix them well together, and the cement is completed. A little lamp-black, yellow-ochre, or other colouring commodity, may be introduced to change the colour of the cement to please the fancy of those who use it. The gentleman who furnished us with the recipe for making it, observed, that he had used it with great success, and recommends it particularly as a protection against fire.

How to Pickle Walnuts.—Scald slightly, and rub off the first skin of a hundred of large walnuts, before they have a hard shell: this may be easily ascertained by trying them with a pin. Put them in a strong cold brine, put new brine the third and sixth days, and take them out and dry them on the ninth. Take an ounce each of long pepper, black pepper, ginger, and allspice; a quarter of an ounce of cloves, some blades of mace, and a table-spoonful of mustard seeds: bruise the whole together, put into a jar a layer of walnuts, strew them well over with the mixture, and proceed in the same manner till all are covered. Then boil three quarts of white wine vinegar, with sliced horse-radish and ginger, pour it hot over the walnuts, and cover close. Repeat the boiling of the vinegar and pour it hot over, three or four days, always keeping the pickle closely covered; add at the last boiling a few cloves of garlic, or shalots. In five months they will be fit for use.

To Cure Beeves' Tongues.—Rub the tongues with salt, and let them remain a day to take out the blood—then rub them well with saltpetre and put them in brine—after they have been there three or four weeks, take them out and wash them well; let them smoke *a day or two*, and hang them up in a dry place to keep.

To Prevent Vermin from Infesting Poultry Houses.—Have the roosts and the nests made of *sassafras wood.* This is recommended by a lady of great integrity and experience, who says she *knows the fact*, though not the *philosophy* of it—any more than does she know why cedar-wood, or tobacco, or camphor will keep the moth out of woollen cloths—but the fact is so, that vermin, or, she says, to use plain country house-wife phraseology, chicken-lice, will not trouble a poultry-house where sassafras wood is thus used.

It is well known that certain insects are repelled by the odor of certain plants. Every one in the country knows, or ought to know, that if you rub pennyroyal about the head and ears of your horse, the pestiferous horse-fly won't come near him; while the flavor of pennyroyal is for us quite agreeable. So true it is, what's food for one is poison for another.

Sassafras makes excellent ox-yokes, being light and tough.

To Clean Paint.—A recipe for cleaning paint, which has been repeatedly tried with success: 1 pound of soft soap—2 ounces of pearl-ash—1 pint of sand—and one pint of table-beer.

Simmer the above in an earthen vessel; be particular that the ingredients are well mixed; put a small quantity on flannel; rub it on the wainscot; then wash it off with warm water and afterwards dry it thoroughly with a linen cloth.

Cure for the Gapes in Young Chickens and Turkeys.—Set fire to *tobacco* in a large iron pot, put the chickens or turkeys in a common white-oak basket, and place that on the top of the pot. Then throw a blanket or other close covering over the whole. The tobacco smoke passes into the basket, and when the chickens or turkeys are nearly suffocated and overcome, turn them loose in the air; this several mornings repeated will effect a cure. When turned loose they are quite drunk and unable to walk—we have often seen some die away and never revive—but the more they are affected the sooner they are cured—provided they are not entirely killed.

A certain Cure for a Tetter Worm.—Take a lump of rock salt, size of a common hickory nut; the same quantity of alum and copperas—burn them separately on a shovel and pulverize them together—then put them in a bottle and pour in half a pint of strong vinegar—and every night, on going to bed, wash the part affected with a soft rag.